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COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF FORESTS AND WATERS

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# Water Resources Service

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## STREAM FLOW RECORDS

For the Water Year

OCTOBER 1, 1926, TO SEPTEMBER 30, 1927.

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**STREAM FLOW RECORDS**  
**of**  
**PENNSYLVANIA**  
**FOR THE WATER YEAR**  
**OCTOBER 1, 1926, TO SEPTEMBER 30, 1927.**

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**STREAM GAGING, FLOOD WARNING AND PRECIPITATION.**

This volume, containing records for the year ending September 30, 1927, is the sixth of a series of publications presenting stream flow records of Pennsylvania to be issued under separate cover. All previous records may be found in the Stream Flow Records of Pennsylvania for the years 1922-1926, and the Annual Reports of the Water Supply Commission of Pennsylvania for the period 1910-1921.

**STREAM GAGING**

At the beginning of the year eighty stream gaging stations were being operated by the State. Three stations were discontinued during the year and two new ones were established. The one on Nescopeck Creek at St. Johns was discontinued on October 5, 1926, owing to dilapidated condition of bridge and unreliability of observer. The East Branch Clarion River station at Instanter, operated in cooperation with the Tannery Waste Disposal Committee, was discontinued on October 6, 1926, and the one on the Allegheny River at Freeport, maintained in cooperation with the United States Army Engineers at Pittsburgh, was discontinued on August 31, 1927. The new stations were established on the Schuylkill River, in cooperation with the Sanitary Water Board, at Pottstown and Norristown on August 2 and 5, 1927, respectively.

The Schmidt and Ault Paper Company began to observe gage heights of Codorus Creek at the old gaging station at York on August 20, 1926, and that part of the record covered by the 1926 Report period is published with the 1927 Report data.

This volume contains stream flow records for eighty-eight gaging stations. Descriptions of stations, daily mean gage heights and current meter discharge measurements are published for all stations. Tables of daily and monthly discharge, summary of run-off in second-feet per square mile, run-off depth in inches, precipitation and per cent run-off to precipitation are given for those stations having a satisfactory rating.

The precipitation for the State during the water year was 43.12



inches or 0.85 inch more than the yearly normal. During six months in the year it was above the monthly average in amounts ranging from 0.15 to 1.68 inches, while in the other months there were deficiencies ranging from 0.11 to 1.40 inches. The monthly excesses or deficiencies had a tendency to average as the year progressed rather than to accumulate to any marked degree for any selected period of a few months.

The precipitation for the water year 1927 strikingly resembled that for 1926 as both were remarkably close to the normal amount. The snowfall for the State averaged 35.0 inches or about 8.0 inches less than the normal amount.

The yearly mean flows for the primary streams in the State ranged from 12 to 33 per cent above the means for the water years 1910 to 1927 inclusive. As a whole, the yearly mean discharge for the primary streams in the State was 27 per cent above the mean for the 18 years ending September 30, 1927.

None of the previous low yearly flows for the period were reached or even approached. The previous high flow year for Riegelsville was reached and those for Williamsport and Kittanning were exceeded slightly.

There was not a single day in October that precipitation was not reported for some part of the State. Although it averaged over one and a third inches above normal, it was well distributed throughout the month and no unusual stream stages resulted. Snowfalls of 24 hours duration, amounting to over four inches, were reported for some of the northwestern counties. The heavy rainfalls that most affected stream flows were on the 6th and 25th of the month with the latter storm the more effective. In general, the stream flows were about the same in the middle of October as on the first, with materially higher discharges at the end of the month.

The precipitation for November averaged nearly one and three-fourths inches above the monthly mean, while the average snowfall was nearly two inches below normal. Light snowfalls were reported for the central and southwestern counties, while heavy snows were recorded for the northwestern part of the State. Nearly all of the precipitation took place on the 9th, 10th and between the 15th and 18th of the month. The former storm did not increase the stream flows materially. However, the rainfall on about the middle of the month raised the streams to flood stages at some of the stations in the Delaware and Susquehanna Basins. It was during these high flows that the maximum stages for the year occurred in more than half of the primary streams in the State, though they were much below stages previously observed.

The following table shows the highest stages reached during the year and the maximum stages recorded:

TABLE NO. I.

*Highest stages reached during the year ending September 30, 1927, and maximum stages recorded.*

Location	Stream	Highest stage during the year	Maximum stage recorded
Bethlehem -----	Lehigh River -----	16.5 November -----	25.9 February 1902
Riegelsville -----	Delaware River -----	22.6 November -----	35.9 October 1903
Reading -----	Schuylkill River -----	10.0 November -----	23.0 September 1850
Wilkes-Barre ----	North Branch Susquehanna River -----	22.7 November -----	33.1 March 1865
Williamsport ----	West Branch Susquehanna River -----	18.7 January -----	33.5 June 1889
Newport -----	Juniata River -----	14.2 November -----	35.9 June 1889
Harrisburg -----	Susquehanna River -----	17.0 November -----	26.8 June 1889
Kittanning -----	Allegheny River -----	18.0 January -----	30.4 March 1913
Avonmore -----	Kiskiminitas River -----	21.3 January -----	33.8 March 1907
Lock No. 4 -----	Monongahela River -----	32.1 January a -----	45.2 July 1888 a
Connellsville ----	Youghiogheny River -----	11.8 January -----	20.5 March 1924

a United States Weather Bureau record.

Low temperatures prevailed for short periods in November but they were not of sufficient duration to appreciably affect stream flows. As a whole the streams were above normal stages most of the month.

It was the coldest December since that of 1919, which was the beginning of a winter when stream flows were more seriously affected by ice than any other in recent years. The precipitation for the month was about three-fourths of an inch below normal, but the average snowfall was slightly more than usual. Precipitation was reported from some parts of the State on every day in the month. Most of the snowfall in the central and eastern counties occurred on the 5th which was unusually early for those sections. A storm on the 26th was heavy west of the mountains and caused the greatest snows of the month in the northwestern counties. In the southwestern part of the State, where the temperatures were higher and the precipitation was in the form of rain, the stream flows were materially increased. There was a marked deficiency in temperature during the first three weeks of the month and, in general, the stage-discharge relations were affected by ice from about the 5th. With but few exceptions the stream flows gradually receded during the month.

Climatic conditions during January were nearly normal, there being a slight deficiency in both temperature and precipitation. The snowfall was considerably less than usual in most parts of the State and generally melted rapidly. Cold periods centered on about the 2d, 9th, 16th and 27th of the month with warm intervals between. In general, the streams were icebound and the stages gradually receded until about the 20th of the month, when the lowest discharges during the winter were reached.

The event of chief importance, from a hydraulic standpoint, was the high waters in the Ohio Basin Rivers and the West Branch Susquehanna River from the 20th to the 24th of January. The highest stages during the year were reached in those streams, though the heights



attained were well below the maximum stages recorded, as shown in Table No. I. During this time there was, with but few exceptions, a sufficient increase in stream flow to break and carry away the ice and in most cases the stage-discharge relations were not affected by ice during the remainder of the winter.

The popular belief in a "January Thaw" was substantiated in 1927 by the marked increase in temperature from the 19th to the 22d of the month. The more or less regular occurrence of a mild spell in the latter part of January seems to find support in the temperature records for many of the eastern states along the Atlantic Seaboard. An examination of the Weather Bureau records for the last 50 years or more discloses a marked crest in the graphs of daily mean temperatures for the period January 21 to 23 for Philadelphia, Pittsburgh and a number of other stations in Eastern States.

It was not the purpose of the study to attempt to show that the "January Thaw" is an established periodicity. However, reliable and fairly similar records for half a century show that it has occurred often enough to leave a marked impress upon the records for that period. The feature is a striking and interesting one and is closely related to stream flow, as a marked increase in temperature during the winter months usually results in increased stream discharge, although it may be of little value as an indication of future happenings.

"January Thaw" was a saying many years before records for satisfactory comparisons were available. It was mentioned by Greeley in his "American Weather" published in 1888 and has been spoken of by several others since that date. There has been but little published upon the subject, as shown by Talman in his compilation of references in 1919, to literature concerning supposed irregularities in the annual march of temperature. Talman shows that the "January Thaw" is popularly looked for in America, especially in the New England States, though it apparently has not been recognized in Europe.

February was an unusually mild winter month, there being only three or four days with a mean temperature below the normal. The minimum temperature for the month was higher in nearly all parts of the State than for any previous February since records began. The precipitation for the month was over three-fourths of an inch above normal. The snowfall was comparatively light until near the end of the third week when the heaviest snow and sleet storm of the winter occurred and it brought the average snowfall for the State to over 6 inches above the February normal.

With but few exceptions the streams gradually receded until about the middle of February when there was a moderate rise in gage heights. On about the 25th there were more decided increases in discharge resulting from melting snow, but by the last of the month they had receded to about the same heights as at the beginning.

March as a whole was warm and dry with an average precipitation of nearly an inch below normal. The deficiency in precipitation was confined principally to the eastern half of the State, while in other localities there were light to moderate excesses. In some of the southeastern counties the deficiencies averaged more than two inches. The snowfall for the month was very light and was confined chiefly to a few central counties and the plateau regions in the northeastern part of the State.

Many of the streams had marked increases in discharge on about the 9th, 15th and 22d of March. The usual high flows were not experienced in 1927, as there was not the usual amount of precipitation and accumulated snow on the drainage basins. By the end of the month the streams had in general receded to about the same stages as at the beginning and end of February.

In April the temperature averaged nearly normal in the Ohio Basin with a moderate deficiency at most places in the central and eastern parts of the State. The precipitation was nearly normal with about the usual amount of April snowfall. Most of the snow fell on the 2d and 4th of the month, but did not remain long on the ground. In the northern tier of counties and on the higher plateau regions it was generally in excess of 2 inches with 6 to 8 inches recorded at some stations.

With but few exceptions there were no unusual changes in stream flows during the month. Many of the streams gradually receded until about the 20th, when there were moderate increases, but by the end of the month they had in most cases receded to about the same stages as at the beginning.

There was much cloudy, dark, and gloomy weather during the month of May as the sunshine averaged only 43 per cent of the possible. Light rains were frequent and while the average rainfall for the State was only slightly above the May normal, there was not a single day that precipitation did not occur in some parts of the State.

The streams in the Delaware Basin did not change materially until about the 25th of May when there were slight increases. In the Monongahela and Lower Allegheny Basins the streams began to rise on about the 17th and then gradually receded during the remainder of the month. Other streams in the State rose on about the 17th with more decided increases in flow on the 25th. In general the streams had receded by the end of the month to practically the same stages as they were at the ends of the four preceding months.

The precipitation for June was nearly half an inch below normal and the temperatures were unseasonably low during the greater part of the month, with heavy frosts on the 2d and 16th. The storms of the month centered on the 4th, 14th, 20th and 26th with amounts rarely



exceeding 2 inches for any given period. Heavy thunder showers occurred on the 4th with rainfalls exceeding a rate of one inch an hour in some localities.

In general, the stream flows gradually receded during June. At the end of the month the flows as a whole in the eastern streams were lower than at any time since about the middle of January, while in the western part of the State they were at their lowest stages since October 1926.

The weather for July was freakish in many respects. The mean temperature for the month was very nearly normal, while 29 degrees, the lowest July temperature on record for Pennsylvania, was recorded on the 5th at West Bingham, Potter County. The rainfalls in most localities were light during the first three weeks, with periods of excessive precipitations on the 22d-23d and 30th-31st, which brought the average for the State nearly two-thirds of an inch above the monthly normal. Along the northern border of Cumberland County rains in excess of 6 inches were recorded for the afternoon and night of the 22d and the observer at Lykens, Dauphin County, reported 8.04 inches for a period of approximately 12 hours on the 23d.

The streams gradually receded until the 23d of July, when there were, with but few exceptions, only moderate increases. By the end of the month they had again receded to about the same flow as at the beginning. The Delaware River at Riegelsville receded to its lowest flow for the year, though the discharge was nearly three and a half times the minimum recorded as shown in Table No. II.

It was the coldest August in the history of the State Weather Service. The low mean temperature for the month was due to a moderate, but steady, deficiency throughout the month, though none of the extremes for individual dates were exceeded. The rainfall was below normal at most stations in the Ohio and Susquehanna Basins, while it was well above the average in the Delaware Basin. Excepting Perkiomen Creek in the Delaware Basin and the lower reaches of the Allegheny and Monongahela Rivers in the Ohio Basin, where there were moderate increases on about the 2d and 10th of August, the stream flows did not change materially during the month.

September averaged slightly above the normal in temperature and well below the average in rainfall, there being a deficiency of nearly one and a half inches. The rainfall was unevenly distributed, there being less than a half inch in some of the northern tier of counties, while others in the south central sections showed an excess for the month.

In general the stream flows decreased during the month of September and, with but one exception, the primary streams of the State receded to their lowest discharge for the year. The low flows for the

year were well above the minimum discharge on record, as presented in the following table, which shows the lowest discharge reached during the year and the minimum discharge recorded.

TABLE NO. II.

*Lowest discharge during the year ending September 30, 1927, and minimum discharge recorded.*

Location	Stream	Lowest discharge during the year	Minimum discharge recorded
Bethlehem	Lehigh River	425 September a	160 October 1910
Riegelsville	Delaware River	2,960 July a	870 September 1908 a
Reading	Schuylkill River	268 September a	115 August 1923 a
Wilkes-Barre	North Branch Susquehanna River	1,700 September b	820 September 1913
Williamsport	West Branch Susquehanna River	762 September	382 September 1913
Newport	Juniata River	740 September	260 August 1925
Harrisburg	Susquehanna River	4,550 September	2,330 September 1900
Kittanning	Allegheny River	1,040 September	570 September 1913
Avonmore	Kiskiminitas River	540 September	60 September 1908
Connellsville	Youghiogheny River	148 September	11 September 1908 October 1910

a Not including flow in the canal.

b Estimated from Towanda and Danville.

The yearly mean discharges in the three principal basins of the State have been compared with the mean discharges for the 18 years ending September 30, 1927, and with the minimum and maximum yearly mean discharges for the period.

In the Delaware Basin, as represented by the Delaware River at Riegelsville, the yearly mean discharge was 21 per cent more than the mean for the 18 years; 93 per cent more than that of 1915, the minimum year for the period, and the same as the 1920 mean, which was the previous maximum during the record. At Bethlehem on the Lehigh River, the mean was 12 per cent more than that for the 18 years; 64 per cent above the minimum which occurred in 1923, and 5 per cent below the maximum in 1922.

The yearly mean discharge in the Susquehanna Basin, as represented by the North Branch Susquehanna River at Danville, was 24 per cent more than the mean for the 18 years; 84 per cent more than the minimum in 1923, and 7 per cent less than the maximum in 1916. At Williamsport on the West Branch Susquehanna River, the mean discharge for the year was 25 per cent more than the mean for the 18 years; 108 per cent more than the minimum in 1925 and 1 per cent above the previous high means for the period in 1912 and 1916. The mean discharge for the Juniata River at Newport was 31 per cent more than the mean for the 18 years; 119 per cent above the minimum in 1925 and 9 per cent less than the maximum in 1924. At Harrisburg on the Susquehanna River the mean discharge was 27 per cent more than the mean for 18 years; 95 per cent more than the minimum of 1923, and 6 per cent less than the maximum in 1916.



In the Ohio Basin, as represented by the Allegheny River at Kittanning, the mean discharge for the year was 33 per cent more than the mean for 18 years; 88 per cent above the minimum in 1925 and 2 per cent more than that for 1912, which was the previous maximum during the period. At Connellsville on the Youghiogheny River, the yearly mean was 23 per cent more than for the 18 years (not including 1919, when the record was not complete); 161 per cent above the minimum in 1925, and 20 per cent below the maximum in 1912.

### FLOOD WARNING

During the water year 1927, there were more predictions for high stages in the Susquehanna Basin than for any other year since 1918. None of the previous high discharge records were exceeded or even approached. The only ice gorge of sufficient magnitude to create backwater to alarming proportions was in the West Branch Susquehanna River below Lock Haven in January.

Heavy rains on the Delaware and Susquehanna Basins, between the 15th and 18th of November, furnished sufficient run-off to produce the highest stages for the year in all of the primary streams east of the Allegheny Mountains, excepting the West Branch Susquehanna River which was higher in January, as the result of a large quantity of impounded water being released when the ice gorge broke below Lock Haven. The heavy rains on the 15th-18th, which ranged from 1.3 to 7.3 inches, were preceded four days by a precipitation of from 1 to 2 inches on the drainage basins.

In the Delaware Basin the Delaware River rose 16.8 feet at Riegelsville to a gage height of 22.6 feet, which was the highest at that locality since October 1924. It was 1.6 feet lower than the 1924 high stage and 13.3 feet below the maximum recorded height in October 1903.

The Lehigh River at Bethlehem rose 13.3 feet to a stage of 16.5 feet, which was the highest gage height in that stream since the maximum recorded stage of 25.9 feet in February 1902. It was, however, only 0.3 foot higher than in October 1924, when 16.2 feet was reached.

At Reading the Schuylkill River increased 8.7 feet to a gage height of 10.0 feet, which was not an unusual stage at that locality. It was 3.2 feet higher than in 1926, about 6.4 feet lower than in 1924 and 1925, and 13.0 feet below the maximum stage recorded in September 1850.

In the Susquehanna Basin the North Branch Susquehanna River rose 16.2 feet at Wilkes-Barre, the West Branch increased 10.1 feet at Williamsport and the Juniata River rose 9.6 feet at Newport. The Susquehanna River rose 10.8 feet at Sunbury and 11.6 feet at Harrisburg.

The following table shows the predicted stages and those which actually occurred:

TABLE NO. III.

*Predicted and Actual Stages, in feet, reached November 16-18, 1926.*

Location	Stream	Predicted Stage	Actual Stage
Binghamton -----	North Branch Susquehanna River -----	15.0	14.4
Corning -----	Chemung River -----	13.0	12.2
Towanda -----	North Branch Susquehanna River -----	16.0	16.6
Wilkes-Barre -----	North Branch Susquehanna River -----	23.0	22.7
Danville -----	North Branch Susquehanna River -----	19.0	18.8
Williamsport -----	West Branch Susquehanna River -----	15.0	13.9
Lewisburg -----	West Branch Susquehanna River -----	13.0	a
Sunbury -----	Susquehanna River -----	14.0	14.8
Newport -----	Juniata River -----	15.0	14.2
Harrisburg -----	Susquehanna River -----	15.5	17.0

a Not determined.

On November 16th the morning stages did not indicate that there would be any material changes in the primary streams during the following 24 hours. However, on the next morning all of the rivers were at high gage heights with crest stages at all stations at about the same time.

The North Branch Susquehanna and Chemung Rivers at Binghamton and Corning, New York, were at their highest stages when the Susquehanna River, in its lower reaches, was within one foot of its crest. Such conditions are caused by very unusual amounts and distributions of rainfall and are ordinarily confined to small drainage areas, while in the case of the November 1926 flood, it had an unprecedented limitation.

Some of the streams rose at rates that probably exceeded one foot per hour and the run-offs, from areas in the immediate vicinity of gaging stations, were sufficient to produce the crest stage, rather than its being the result of accumulation of flow as the flood wave proceeded along its course. Fortunately no great flood on a large river could result from such a condition, and there are no methods whereby any forecasts could be made to a reasonable degree of accuracy with a timely warning for such cases.

At the time of the November flood, the North Branch Susquehanna River was the most affected though the Juniata and Susquehanna Rivers attained their highest stages during the year at that time. Excepting the North Branch Susquehanna River, there were no unusual stages in the streams and they were all well below the maximum heights recorded.

The North Branch Susquehanna River at Wilkes-Barre was 10.4 feet lower than in March 1865, the Juniata River at Newport was 21.7 feet below that of June 1889, and the Susquehanna River at Harrisburg was 9.8 feet lower than in June 1889.



In the Ohio Basin, excepting the Monongahela and Allegheny Rivers, the streams were not materially affected during November. The Monongahela River rose about 16 feet at South Brownsville to a stage of 27.0 feet on the 16th and the Allegheny River increased about 9.0 feet at Kittanning to a gage height of 15.6 feet on the 17th, but they were not unusually high stages for either stream.

Storms during the latter part of December, particularly on the 26th, which was heavy west of the mountains and in the form of rain on the southwestern part of the State, increased the stream flow in the Monongahela River, while other streams in the State were not appreciably affected. The Monongahela River rose about 16 feet at South Brownsville to a stage of 27.3 feet on the 23d and increased about 10 feet to a gage height of 27.9 feet on the 26-27th of the month.

On about the 20th of January there was a general rise in all streams in the State and with but few exceptions there was a sufficient increase in flow to break and carry away the ice. In the Delaware and Susquehanna Basins no unusual stream heights were attained, except in the West Branch Susquehanna River, where the ice broke on a low gage height, without sufficient flow to carry it away, and gorged below Lock Haven.

The West Branch rose 16 feet at Lock Haven to gage height 20.1 feet. It would not have been over 11.5 feet, as indicated by the flow at Renovo, had it not been for the backwater condition. It was, however, 2.7 feet below the ice flood of 1926, 6.7 feet below that of 1918 and 9.7 feet below the June flood of 1889, which is the highest on record.

When the ice gorge broke at Lock Haven a large quantity of impounded water was released and the West Branch Susquehanna River rose about 17 feet at Williamsport, to a stage of 18.7 feet, which was the highest gage height in that stream during the year. It was not an exceptionally high stage for Williamsport as it had been exceeded 4 times since 1919 and was 14.8 feet lower than the maximum in June 1889.

In the Ohio Basin all of the streams reached their highest stages for the year on about the 22d of January, though they were well below the maximum stages recorded, as presented in Table No. I. The Allegheny River rose 14 feet at Kittanning to a stage of 18.0 feet, which was 12.4 feet lower than in March 1913. The Kiskiminitas River increased 14 feet at Avonmore to a gage height of 21.3 feet, being 12.5 feet below that of March 1907.

The Monongahela River rose 17.5 feet at Lock No. 4 to a stage of 32.1 feet, which was 13.1 feet lower than the maximum recorded stage in July 1888. The Youghiogheny River increased 9.3 feet at Connells-ville to gage height 11.8 feet and was 8.7 feet lower than the maximum recorded in March 1924.

The Ohio River rose 18.7 feet at Pittsburgh to gage height 29.7

feet, which was 4.7 feet above flood stage and the highest water at that station since March 1924. It was 5.8 feet lower than in March 1907, when the highest stage in recent years occurred.

In the Beaver Basin the Shenango River rose 7.5 feet to a stage of 10.5 feet, which was a gage height frequently exceeded at that locality and was 8.1 feet lower than the maximum recorded in March 1913.

In March melting snows from high temperatures, accompanied by moderate rains, resulted in ordinary high stages in many of the streams, particularly in the Susquehanna and Ohio Basins.

Most of the crest stages were on about the 9th, 15th and 22d of the month. In the Delaware Basin the only stream materially affected was the Lackawaxen River and the highest stage reached was nearly 5 feet lower than in November, when the maximum stage for the year occurred in that river.

In the Susquehanna Basin there were three separate and distinct flood crests in the North Branch, West Branch and Susquehanna Rivers, with two notable increases in the Juniata River.

At the time of the first flood in March, the North Branch Susquehanna River rose about 10 feet at Wilkes-Barre, the West Branch increased about 10 feet at Williamsport, the Juniata rose about 7 feet at Newport and the Susquehanna increased 6 feet at Harrisburg.

The following table shows the predicted stages and those which actually occurred:

TABLE NO. IV.

*Predicted and Actual Stages, in feet, reached March 8-10, 1927.*

Location	Stream	Predicted Stage	Actual Stage
Binghamton	North Branch Susquehanna River	10.0	8.7
Corning	Chemung River	10.0	9.8
Towanda	North Branch Susquehanna River	11.0	11.2
Wilkes-Barre	North Branch Susquehanna River	16.0	15.3
Danville	North Branch Susquehanna River	13.0	13.3
Bower	West Branch Susquehanna River	12.0	11.2
Clearfield	West Branch Susquehanna River	7.0	5.8a
Renovo	West Branch Susquehanna River	11.0	10.5
Lock Haven	West Branch Susquehanna River	13.0	12.9
Jersey Shore	West Branch Susquehanna River	15.0	b
Williamsport	West Branch Susquehanna River	14.0	13.6
Lewisburg	West Branch Susquehanna River	12.0	b
Sunbury	Susquehanna River	11.0	10.5
Newport	Juniata River	13.0	12.4
Harrisburg	Susquehanna River	12.0	11.6

a From U. S. Weather Bureau Record.

b Not determined.

During this time in the Ohio Basin, the Kiskiminitas River rose 10 feet at Avonmore, the Allegheny increased 6.5 feet at Kittanning and the Monongahela rose 6 feet at South Brownsville, while the other major streams in the basin were not materially affected.

In the middle of March the North Branch Susquehanna River rose about 8 feet at Wilkes-Barre, the West Branch increased 4 feet at Williamsport and the Susquehanna rose 4 feet at Harrisburg.



The following table shows the predicted stages and those which actually occurred:

TABLE NO. V.

*Predicted and Actual Stages, in feet, reached March 14-17, 1927.*

Location	Stream	Predicted Stage	Actual Stage
Binghamton	North Branch Susquehanna River	15.0	15.5
Corning	Chemung River	10.0	9.4
Towanda	North Branch Susquehanna River	14.0	14.9
Wilkes-Barre	North Branch Susquehanna River	20.0	19.4
Danville	North Branch Susquehanna River	16.0	16.2
Renovo	West Branch Susquehanna River	9.5	8.4
Lock Haven	West Branch Susquehanna River	12.0	10.1
Jersey Shore	West Branch Susquehanna River	14.0	a
Williamsport	West Branch Susquehanna River	13.0	13.4
Lewisburg	West Branch Susquehanna River	11.0	a
Sunbury	Susquehanna River	11.5	12.0
Harrisburg	Susquehanna River	12.0	12.3

a Not determined.

The upper reaches of the West Branch Susquehanna and Juniata Rivers were not affected to any appreciable degree by the climatic conditions that caused the increased flows in the other streams of the basin.

The only primary stream in the Ohio Basin, notably affected in the middle of the month, was the Allegheny River which rose about 4 feet at Kittanning.

The storm that caused the high stages on about the 22d of March covered a larger area than the preceding ones and nearly all of the streams west of the Delaware drainage were affected.

In the Susquehanna Basin the North Branch Susquehanna River rose about 6 feet at Wilkes-Barre, the West Branch increased 7.5 feet at Williamsport, the Juniata River rose 5.5 feet at Newport and the Susquehanna River rose 5 feet at Harrisburg.

The following table shows the predicted stages and those which actually occurred:

TABLE NO. VI.

*Predicted and Actual Stages, in feet, reached March 21-23, 1927.*

Location	Stream	Predicted Stage	Actual Stage
Binghamton	North Branch Susquehanna River	10.0	11.0
Corning	Chemung River	12.0	11.1
Towanda	North Branch Susquehanna River	12.5	13.0
Wilkes-Barre	North Branch Susquehanna River	18.5	16.9
Danville	North Branch Susquehanna River	15.0	14.8
Bower	West Branch Susquehanna River	12.0	11.8
Clearfield	West Branch Susquehanna River	7.0	6.8a
Renovo	West Branch Susquehanna River	12.0	11.8
Lock Haven	West Branch Susquehanna River	15.0	15.4
Jersey Shore	West Branch Susquehanna River	17.0	b
Williamsport	West Branch Susquehanna River	15.0	15.4
Lewisburg	West Branch Susquehanna River	13.0	b
Sunbury	Susquehanna River	12.0	12.0
Newport	Juniata River	11.0	10.6
Harrisburg	Susquehanna River	13.0	13.0

a From U. S. Weather Bureau Record.

b Not determined.

During this time the Allegheny River rose 7 feet at Kittanning, the Monongahela increased 6 feet at South Brownsville and the Shenango River rose 5.5 feet at Sharon.

The only stream in which there was any great change during the month of April was the Monongahela River, which rose about 15 feet at South Brownsville in the latter part of the month to a stage of 27.3 feet on the first of May, which was 5.2 feet lower than in January.

On the 19th of May the Monongahela River reached a stage of 26.9 feet at South Brownsville, having risen 6.5 feet from the preceding day, which was only 0.4 foot lower than on the first of the month.

In the Delaware Basin the Lackawaxen River rose 4 feet at West Hawley on the 24th of May, which was the only stream materially affected in that basin.

In the Susquehanna Basin the West Branch Susquehanna and Juniata Rivers were not materially affected. The streams rose about 3.5 feet at Williamsport and Newport to stages 12.5 and 9.8 feet respectively, which were not unusual heights in the streams.

The North Branch Susquehanna River rose 14 feet at Wilkes-Barre to gage height 18.9 feet and the Susquehanna River increased 6.5 feet at Harrisburg to a stage of 12.5 feet.

The following table shows the predicted stages and those which actually occurred:

TABLE NO. VII.

*Predicted and Actual Stages, in feet, reached May 24-26, 1927.*

Location	Stream	Predicted Stage	Actual Stage
Binghamton	North Branch Susquehanna River	13.0	12.4
Corning	Chemung River	12.0	11.2
Towanda	North Branch Susquehanna River	14.0	14.8
Wilkes-Barre	North Branch Susquehanna River	21.0	18.9
Danville	North Branch Susquehanna River	17.0	16.2
Sunbury	Susquehanna River	11.0	11.8
Harrisburg	Susquehanna River	12.0	12.5

In the Ohio Basin the Allegheny River rose about 8 feet at Kittanning to a stage of 15.5 feet on the 26th which was 2.5 feet lower than in January. None of the other large streams in that basin were materially affected in May.

There were no unusual flows in the primary streams of the Delaware and Susquehanna Basins during the month of June. In the Ohio Basin the Kiskiminitas River rose 14 feet at Avonmore in about 18 hours to gage height 18.1 feet on the 5th, while the Allegheny River increased less than 3.5 feet at Kittanning. The stage at Avonmore was 3.2 feet lower than the maximum for the year in January. The Monongahela River rose 9.2 feet at South Brownsville, to gage height 20.5 feet and the Youghiogheny River increased 6 feet at Connellsville to a stage of 9.5 feet.



During the remainder of the year there were no unusual flows in any of the major streams in the State, excepting the Monongahela River rose 8.2 feet at South Brownsville, to gage height 20.4 feet on August 2d, and increased from 11.0 feet on the 8th to 18.2 feet on the 10th of August.

### PRECIPITATION

Thirty-seven rainfall stations were maintained by the Department of Forests and Waters during the year. The United States Weather Bureau maintains a larger number of stations and publishes its records monthly and annually. As it is more convenient for parties using precipitation records to find them all under one cover, a cooperative arrangement was made with the United States Weather Bureau in 1920 whereby the Department of Forests and Waters furnished its record to the Weather Bureau for publication in its monthly and annual Climatological Data.

Prior to 1920 the Water Supply Commission of Pennsylvania published precipitation records in its annual reports; for subsequent years they have been published by the United States Weather Bureau.

The following table shows the precipitation stations in Pennsylvania, used in preparing the precipitation map shown on page 27. The table comprises the stations of the United States Weather Bureau, the Department of Forests and Waters and those of private interests.

TABLE NO. VIII.

#### PRECIPITATION STATIONS IN PENNSYLVANIA

##### ATLANTIC DRAINAGE

STATION	COUNTY	DRAINAGE BASIN
Allentown	Lehigh	Lehigh
Altoona	Blair	Juniata
Ansonia	Tioga	West Branch Susquehanna
Arendtsville	Adams	Susquehanna
Bakers Summit	Bedford	Juniata
Bear Gap	Northumberland	Susquehanna
Bethlehem	Northampton	Lehigh
Bloersville	Cumberland	Susquehanna
Bustleton	Philadelphia	Delaware
Campbell's Ledge	Lackawanna	North Branch Susquehanna
Carlisle	Cumberland	Susquehanna
Catawissa	Columbia	North Branch Susquehanna
Cedar Run	Centre	West Branch Susquehanna
Centre Hall	Franklin	Susquehanna
Chambersburg	Lycoming	Potomac
Clearfield	Clearfield	West Branch Susquehanna
Coatesville (a)	Chester	Delaware
Coatesville (b)	Chester	Delaware

STATION	COUNTY	DRAINAGE BASIN
Colebrook	Lebanon	Susquehanna
Conshohocken	Montgomery	Schuylkill
Cresco (Snow Hill)	Monroe	Delaware
Cresson	Cambria	Juniata
Doylestown	Bucks	Delaware
Driftwood	Cameron	West Branch Susquehanna
Dushore	Sullivan	West Branch Susquehanna
Effort	Monroe	Delaware
Emporium	Cameron	West Branch Susquehanna
Ephrata	Lancaster	Susquehanna
Forest City	Susquehanna	North Branch Susquehanna
Freeland	Luzerne	Lehigh
George School	Bucks	Delaware
Gettysburg	Adams	Potomac
Girardville	Schuylkill	Susquehanna
Gordon	Schuylkill	Susquehanna
Gouldsboro	Wayne	Lehigh
Graters Ford	Montgomery	Schuylkill
Hamburg	Berks	Schuylkill
Hamlin, Salem	Wayne	Delaware
Hanover	York	Susquehanna
Harrisburg	Dauphin	Susquehanna
Harrisburg, East	Dauphin	Susquehanna
Harrisburg, North	Dauphin	Susquehanna
Hawley	Wayne	Delaware
Holtwood	Lancaster	Susquehanna
Huntingdon	Huntingdon	Juniata
Huntsville Intake	Luzerne	North Branch Susquehanna
Hyndman	Bedford	Potomac
Lancaster	Lancaster	Susquehanna
Lansford	Carbon	Lehigh
Lawrenceville	Tioga	North Branch Susquehanna
Lebanon	Lebanon	Susquehanna
Lewisburg	Union	West Branch Susquehanna
Lloyd	Tioga	West Branch Susquehanna
Lock Haven	Clinton	West Branch Susquehanna
Lykens	Dauphin	Susquehanna
Mauch Chunk	Carbon	Lehigh
Mifflintown	Juniata	Juniata
Montrose	Susquehanna	North Branch Susquehanna
Morris Run	Tioga	North Branch Susquehanna
Mount Carmel	Northumberland	North Branch Susquehanna
Mount Pocono	Monroe	Delaware
Mount Union	Huntingdon	Juniata
Muncy Valley	Sullivan	West Branch Susquehanna
Narberth	Montgomery	Delaware
Neshaminy	Bucks	Delaware
New Park	York	Susquehanna
Newport	Perry	Juniata
North Mehoopany	Wyoming	North Branch Susquehanna
Palmerton	Carbon	Lehigh
Paupack Electric	Pike	Delaware



STATION	COUNTY	DRAINAGE BASIN
Paupack .....	Pike .....	Delaware
Philadelphia .....	Philadelphia .....	Delaware
Phila., Germantown .....	Philadelphia .....	Delaware
Philadelphia, Navy Yard ..	Philadelphia .....	Delaware
Philadelphia, Point Breeze	Philadelphia .....	Delaware
Phoenixville .....	Chester .....	Schuylkill
Pike's Creek Corners .....	Luzerne .....	North Branch Susquehanna
Pike's Creek Intake .....	Luzerne .....	North Branch Susquehanna
Pine Grove .....	Schuylkill .....	Susquehanna
Pleasant Mount .....	Wayne .....	Delaware
Plymouth Reservoir .....	Luzerne .....	North Branch Susquehanna
Pottstown .....	Montgomery .....	Schuylkill
Pottsville .....	Schuylkill .....	Schuylkill
Promised Land .....	Pike .....	Delaware
Quakertown .....	Bucks .....	Delaware
Reading .....	Berks .....	Schuylkill
Renovo .....	Clinton .....	West Branch Susquehanna
Scranton .....	Lackawanna .....	North Branch Susquehanna
Selinsgrove .....	Snyder .....	Susquehanna
Shamokin .....	Northumberland .....	Susquehanna
Shawmont .....	Philadelphia .....	Schuylkill
South Sterling .....	Pike .....	Delaware
Spring Brook Intake .....	Lackawanna .....	North Branch Susquehanna
State College .....	Centre .....	West Branch Susquehanna
Sunbury .....	Northumberland .....	Susquehanna
Towanda .....	Bradford .....	North Branch Susquehanna
Watres Reservoir .....	Lackawanna .....	North Branch Susquehanna
Weikert .....	Union .....	Susquehanna
Wellsboro .....	Tioga .....	West Branch Susquehanna
West Chester .....	Chester .....	Delaware
Wilkes-Barre (a) .....	Luzerne .....	North Branch Susquehanna
Wilkes-Barre (c) .....	Luzerne .....	North Branch Susquehanna
Williamsport (a) .....	Lycoming .....	West Branch Susquehanna
Williamsport (b) .....	Lycoming .....	West Branch Susquehanna
York .....	York .....	Susquehanna
York Haven .....	York .....	Susquehanna

## OHIO DRAINAGE

Beaver Dam .....	Beaver .....	Ohio
Beaver Falls .....	Beaver .....	Beaver
Boydstown Reservoir .....	Butler .....	Allegheny
Bradford .....	McKean .....	Allegheny
Brookville .....	Jefferson .....	Allegheny
Butler .....	Butler .....	Beaver
Claysville .....	Washington .....	Ohio
Cloe .....	Jefferson .....	Allegheny
Clymer .....	Indiana .....	Kiskiminitas
Confluence .....	Somerset .....	Youghiogheny
Coraopolis .....	Allegheny .....	Ohio
Corry .....	Erie .....	Allegheny
Condersport .....	Potter .....	Allegheny
Creekside .....	Indiana .....	Allegheny

STATION	COUNTY	DRAINAGE BASIN
Dalton Run .....	Somerset .....	Kiskiminitas
Derry .....	Westmoreland .....	Kiskiminitas
Donora .....	Washington .....	Monongahela
Ebensburg .....	Cambria .....	Kiskiminitas
Elk Lick .....	Somerset .....	Youghiogheny
Falls Creek .....	Clearfield .....	Allegheny
Franklin .....	Venango .....	Allegheny
Freeport .....	Armstrong .....	Allegheny
Greensburg .....	Westmoreland .....	Youghiogheny
Greenville .....	Mercer .....	Beaver
Grove City .....	Mercer .....	Beaver
Herrs Island Dam .....	Allegheny .....	Allegheny
Hinkston Run .....	Cambria .....	Kiskiminitas
Indiana .....	Indiana .....	Kiskiminitas
Ingram .....	Allegheny .....	Ohio
Irwin .....	Westmoreland .....	Youghiogheny
Johnstown .....	Cambria .....	Kiskiminitas
Ketner .....	Elk .....	Allegheny
Kregar .....	Westmoreland .....	Youghiogheny
Laurel Run .....	Cambria .....	Kiskiminitas
Linesville .....	Crawford .....	Beaver
Lock No. 4 .....	Washington .....	Monongahela
Lycippus .....	Westmoreland .....	Kiskiminitas
Martin .....	Fayette .....	Monongahela
Mill Creek .....	Cambria .....	Kiskiminitas
Mount Lebanon .....	Allegheny .....	Ohio
New Castle .....	Lawrence .....	Beaver
Newell .....	Fayette .....	Monongahela
North Fork .....	Somerset .....	Kiskiminitas
Parkers Landing .....	Armstrong .....	Allegheny
Pennline .....	Crawford .....	Beaver
Pittsburgh .....	Allegheny .....	Ohio
Quemahoning .....	Somerset .....	Kiskiminitas
Ridgway (a) .....	Elk .....	Allegheny
Ridgway (d) .....	Elk .....	Allegheny
Saegerstown .....	Crawford .....	Allegheny
Saltlick .....	Cambria .....	Kiskiminitas
Saltsburg .....	Indiana .....	Kiskiminitas
Sharon .....	Mercer .....	Beaver
Somerset .....	Somerset .....	Youghiogheny
Springdale .....	Allegheny .....	Allegheny
Uniontown .....	Fayette .....	Monongahela
Unity Reservoir .....	Westmoreland .....	Youghiogheny
Vandergrift .....	Westmoreland .....	Kiskiminitas
Warren .....	Warren .....	Allegheny
Washington .....	Washington .....	Ohio
Westford .....	Crawford .....	Beaver
West Newton .....	Westmoreland .....	Youghiogheny
Zelienople .....	Butler .....	Beaver



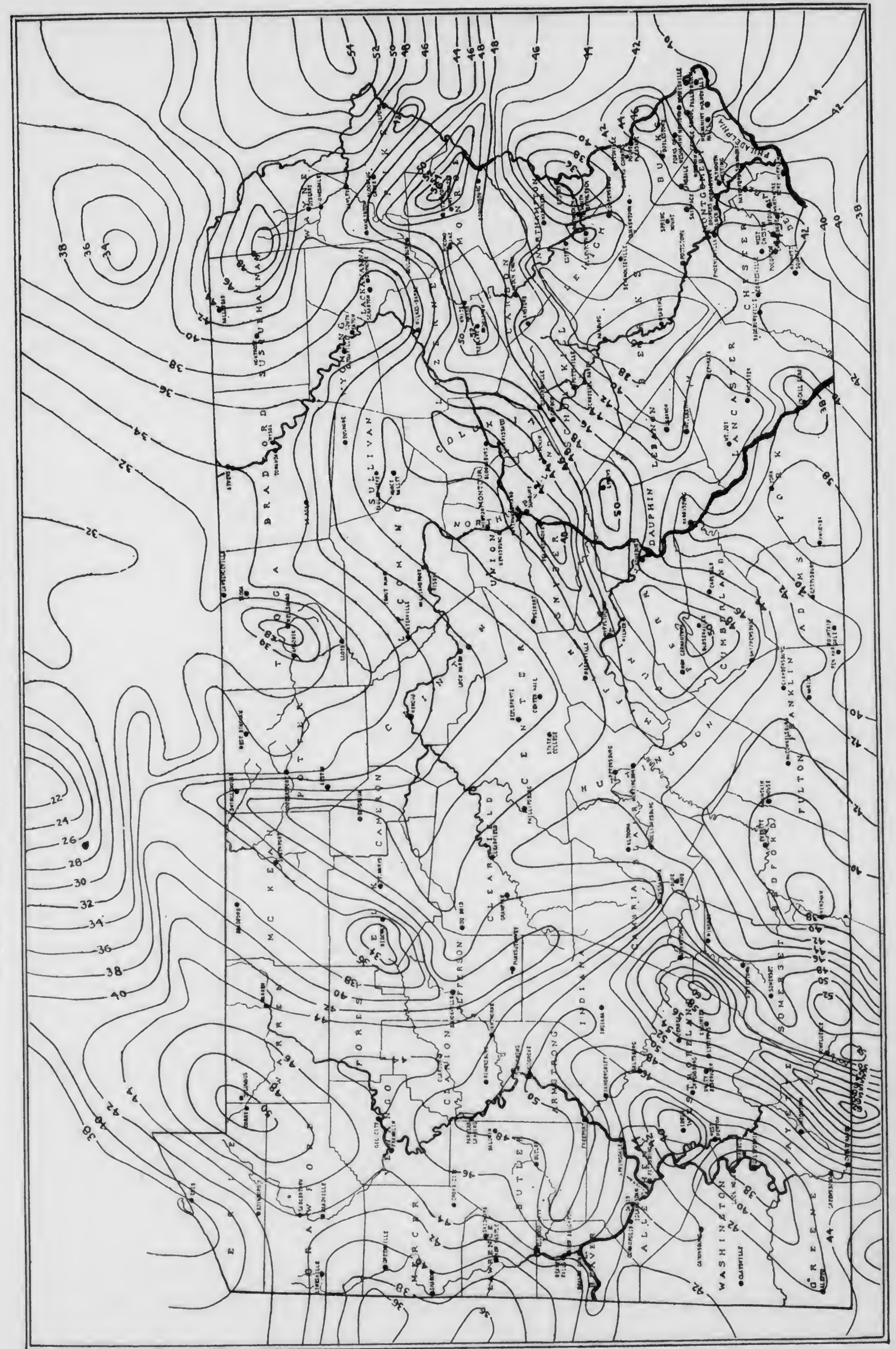
## LAKE DRAINAGE

STATION	COUNTY	DRAINAGE BASIN
Erie .....	Erie .....	Lake Erie
West Bingham .....	Potter .....	Genesee

- (a) United States Weather Bureau.
- (b) Department of Forests and Waters, Water Resources Service.
- (c) Spring Brook Water Supply Company.
- (d) Associated Gas and Electric Company.

DEPARTMENT OF FORESTS AND WATERS  
WATER RESOURCES SERVICE

Map showing precipitation for year ending September 30, 1927.





## STREAM FLOW RECORDS

### DEFINITION OF TERMS

The volume of water flowing in a stream—the “run-off” or “discharge”—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off depth in inches, acre-feet and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, and run-off in inches. They may be defined as follows:

“Second-feet” is an abbreviation for “cubic feet per second.” A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed by the use of the factors.

“Second-feet per square mile” is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

“Run-off (depths in inches)” is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

An “acre-foot” is equivalent to 43,560 cubic feet and is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage and irrigation.

The following terms not in common use are here defined:

“Stage-discharge relation,” an abbreviation for the term “relation of gage height to discharge.”

“Control,” a term used to designate the section or sections of the stream below the gage which determine the stage-discharge relation at the gage. It should be noted that the control may not be the same at all stages.

The “point of zero flow” for a gaging station is that point on the gage—the gage height—to which the surface of the river falls when the discharge is reduced to zero.

TABLE NO. IX  
CONVERSION TABLES

The following tables afford a ready means of conversion between the terms in common use in hydraulic computations.

*Discharge in second-feet per square mile into run-off in depth in inches*

Discharge (second-feet per square mile)	Run-off (depth in inches)				
	1 day	28 days	29 days	30 days	31 days
1	0.03719	1.041	1.079	1.116	1.153
2	.07438	2.083	2.157	2.231	2.306
3	.11157	3.124	3.236	3.347	3.459
4	.14876	4.165	4.314	4.463	4.612
5	.18595	5.207	5.393	5.578	5.764
6	.22314	6.248	6.471	6.694	6.917
7	.26033	7.289	7.550	7.810	8.070
8	.29752	8.331	8.628	8.926	9.223
9	.33471	9.372	9.707	10.041	10.376

Note—For part of a month multiply the run-off for 1 day by the number of days.

*Discharge in second-feet into run-off in acre-feet.*

Discharge (second-feet)	Run-off (acre-feet)				
	1 day	28 days	29 days	30 days	31 days
1	1.983	55.54	57.52	59.50	61.49
2	3.967	111.1	115.0	119.0	123.0
3	5.950	166.6	172.6	178.5	184.5
4	7.934	222.1	230.1	238.0	246.0
5	9.917	277.7	287.6	297.5	307.4
6	11.90	333.2	345.1	357.0	368.9
7	13.88	388.8	402.6	416.5	430.4
8	15.87	444.3	460.2	476.0	491.9
9	17.85	499.8	517.7	535.5	553.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

*Discharge in second-feet into run-off in millions of cubic feet.*

Discharge (second-feet)	Run-off (millions of cubic feet)				
	1 day	28 days	29 days	30 days	31 days
1	0.0864	2.419	2.506	2.592	2.678
2	.1728	4.838	5.012	5.184	5.356
3	.2592	7.257	7.518	7.776	8.034
4	.3456	9.676	10.02	10.37	10.71
5	.4320	12.10	12.53	12.96	13.39
6	.5184	14.51	15.04	15.55	16.07
7	.6048	16.93	17.54	18.14	18.75
8	.6912	19.35	20.05	20.74	21.42
9	.7776	21.77	22.55	23.33	24.10

Note—For part of a month multiply the run-off for 1 day by the number of days.



Discharge in second-feet into run-off in millions of gallons.

Discharge (second-feet)	Run-off (millions of gallons)				
	1 day	28 days	29 days	30 days	31 days
1	0.6463	18.10	18.74	19.39	20.04
2	1.293	36.20	37.48	38.78	40.08
3	1.939	54.30	56.22	58.17	60.12
4	2.585	72.40	74.96	77.56	80.16
5	3.232	90.50	93.70	96.95	100.2
6	3.878	108.6	112.4	116.3	120.2
7	4.524	126.7	131.2	135.7	140.3
8	5.170	144.8	149.9	155.1	160.3
9	5.817	162.9	168.7	174.5	180.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

Velocity in feet per second into velocity in miles per hour.

(1 foot per second=0.681818 mile per hour, or very nearly two-thirds mile per hour; 1 mile per hour=1.46666 feet per second. In computing the table the values 0.68182 and 1.4667 were used).

Feet per second (units)	Miles per hour for tenths of foot per second									
	0	1	2	3	4	5	6	7	8	9
0	0.000	0.068	0.136	0.205	0.273	0.341	0.409	0.477	0.545	0.614
1	0.32	0.750	1.181	1.612	2.043	2.474	2.905	3.336	3.767	4.198
2	1.33	1.43	1.50	1.57	1.64	1.70	1.77	1.84	1.91	1.98
3	2.05	2.11	2.18	2.25	2.32	2.39	2.45	2.52	2.59	2.66
4	2.73	2.80	2.86	2.93	3.00	3.07	3.14	3.20	3.27	3.34
5	3.41	3.48	3.55	3.61	3.68	3.75	3.82	3.89	3.95	4.02
6	4.09	4.16	4.23	4.30	4.36	4.43	4.50	4.57	4.64	4.70
7	4.77	4.84	4.91	4.98	5.05	5.11	5.18	5.25	5.32	5.39
8	5.45	5.52	5.59	5.66	5.73	5.80	5.86	5.93	6.00	6.07
9	6.14	6.20	6.27	6.34	6.41	6.48	6.55	6.61	6.68	6.75

### CONVENIENT EQUIVALENTS.

#### LENGTH

1 inch = 1/12 foot = 0.027778 yard = 0.000015783 mile = 2.54 centimeters.  
 1 foot = 12 inches = 1/3 yard = 0.00018939 mile = 0.3048 meter.  
 1 yard = 36 inches = 3 feet = 0.00056818 mile = 0.9144 meter.  
 1 mile = 63,360 inches = 5,280 feet = 1,760 yards = 1.60935 kilometers.  
 1 meter = 100 centimeters = 0.001 kilometer = 39.37 inches = 3.2808 feet = 1.0936 yards = 0.00062137 mile.

#### SURFACE

1 square inch = 0.006944 square foot = 0.0007716 square yard = 0.0000001594 acre = 0.000000002491 square mile = 6.45163 square centimeters.  
 1 square foot = 144 square inches = 1/9 square yard = 0.000022957 acre = 0.00000003587 square mile = 0.092903 square meter.  
 1 square yard = 1,296 square inches = 9 square feet = 0.0002066 acre = 0.0000003228 square mile = 0.83613 square meter.  
 1 acre = 6,272,640 square inches = 43,560 square feet = 4,840 square yards = 0.0015625 square mile = 208.71 feet square = 0.404687 hectare.  
 1 square mile = 4,014,489,600 square inches = 27,878,400 square feet = 3,097,600 square yards = 640 acres = 259 hectares.  
 1 square meter = 10,000 square centimeters = 0.0001 hectare = 0.000001 square kilometer = 1,550 square inches = 10.7639 square feet = 1.19598 square yards = 0.0002471 acre = 0.0000003861 square mile.

#### VOLUME

1 cubic inch = 0.004329 United States gallon = 0.0005787 cubic foot = 16.3872 cubic centimeters.  
 1 United States gallon = 231 cubic inches = 0.13368 cubic foot = 0.00000307 acre foot = 3.78543 liters.  
 1 cubic foot = 1,728 cubic inches = 7.4805 United States gallons = 0.037037 cubic yards = 0.000022957 acre-foot = 28.317 liters.  
 1 cubic yard = 46,656 cubic inches = 27 cubic feet = 0.00061983 acre-foot = 0.76456 cubic meter.  
 1 acre-foot = 325,851 United States gallons = 43,560 cubic feet = 1,613 1/3 cubic yards = 1,233.49 cubic meters.  
 1 cubic meter, stere, or kiloliter = 1,000,000 cubic centimeters = 1,000 liters = 61,023.4 cubic inches = 264.17 United States gallons = 35.3145 cubic feet = 1.30794 cubic yards = 0.000810708 acre-foot.

### HYDRAULICS

1 United States gallon of water weighs 8.34 pounds avoirdupois.  
 1 cubic foot of water weighs 62.5 pounds avoirdupois.  
 1 cubic foot = 7.48 United States gallons per second = 448.8 United States gallons per minute = 26,929.9 United States gallons per hour = 646,317 United States gallons per day.  
 1 second-foot = 60 cubic feet per minute = 3,600 cubic feet per hour = 86,400 cubic feet per day = 31,536,000 cubic feet per year = 0.000214 cubic miles per year.  
 1 second-foot = 0.9917 acre-inch per hour = 1.983471 acre-feet per day = 723.966942 acre-feet per year.  
 1 second-foot = 0.028317 cubic meter per second = 1.699 cubic meters per minute = 101.941 cubic meters per hour = 2,446.58 cubic meters per day.  
 1 second-foot for 1 year (365 days) will cover 1 square mile 1.1312 feet or 13.5744 inches deep.  
 1 second-foot falling 10 feet = 1.135 horsepower.  
 100 United States gallons per minute = 0.223 second-foot = 0.442 acre-foot in one day.  
 1 million gallons per day = 1.55 second-feet = 3.07 acre-feet per day = 2.629 cubic meters per minute.  
 1 million gallons per month = 0.05525 second-feet for one 28-day month = 0.05334 second-foot for one 29-day month = 0.05157 second-foot for one 30-day month = 0.04990 second-foot for one 31-day month.  
 1,000,000,000 (1 United States billion) cubic feet = 11,570 second feet for one day = 413 second-feet for one 28-day month = 399 second-feet for one 29-day month = 386 second-feet for one 30-day month = 373 second-feet for one 31-day month.  
 1 horsepower = 1 second-foot falling 8.8 feet.  
 1 horsepower = 1 second-foot falling 11.0 feet, 80 per cent efficiency.  
 1 horsepower = 5,694,120 foot-gallons per day = 550 foot-pounds per second = 33,000 foot-pounds per minute = 1,980,000 foot-pounds per hour = 2,545 British thermal units per hour = 76 kilogrammeters per second = 1.27 kilogrammeters per minute = 746 watts.  
 1.3405 horsepower = 1 kilowatt.  
 1 inch deep on 1 square mile = 2,323,200 cubic feet = 0.0737 second-foot for 1 year.  
 1 foot deep (head of 1 foot) = 0.434 pound pressure on 1 square inch.  
 1 cubic meter per minute = 0.5886 second-foot = 4.403 United States gallons per second = 1.1674 acre-feet per day.  
 1 foot per second = 0.68 mile per hour = 1.097 kilometers per hour.  
 Acceleration of gravity, g = 32.16 feet per second.

### EXPLANATION OF DATA

The data presented in this report covers the period October 1, 1926, to September 30, 1927. At the first of January in most parts of the United States much of the precipitation in the preceding three months is stored as ground water, in the form of snow or ice or in ponds, lakes and swamps, and this stored water passes off in the streams during the spring break-up; at the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for a year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging station consists of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurement in determining the daily flow. The records of stage are obtained from direct reading on a chain or staff gage. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge.

From the discharge measurements rating tables are prepared that give the discharge for any stage. The application of the daily mean gage heights to these rating tables gives the daily discharge from which the monthly and yearly mean discharge are computed.

The data presented for each gaging station comprises a description of a station, a table giving results of discharge measurements, a table showing daily mean gage height, a table showing the daily discharge, and a table of monthly and yearly discharge and run-off.



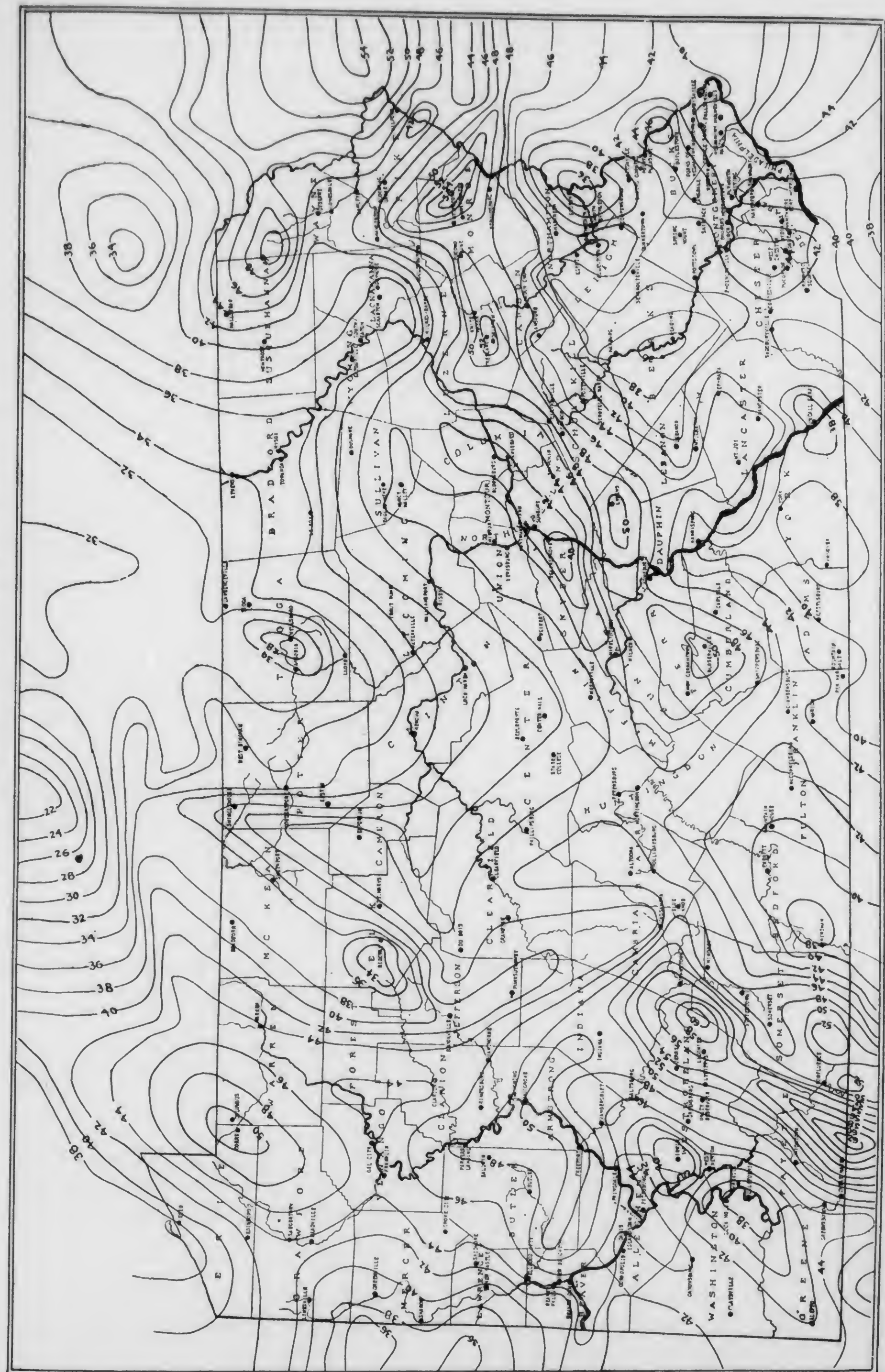
## LAKE DRAINAGE

STATION	COUNTY	DRAINAGE BASIN
Erie .....	Erie .....	Lake Erie
West Bingham .....	Potter .....	Genesee

- (a) United States Weather Bureau.
- (b) Department of Forests and Waters, Water Resources Service.
- (c) Spring Brook Water Supply Company.
- (d) Associated Gas and Electric Company.

DEPARTMENT OF FORESTS AND WATERS  
WATER RESOURCES SERVICE

Map showing precipitation for year ending September 30, 1927.





## STREAM FLOW RECORDS

### DEFINITION OF TERMS

The volume of water flowing in a stream—the “run-off” or “discharge”—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off depth in inches, acre-feet and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, and run-off in inches. They may be defined as follows:

“Second-feet” is an abbreviation for “cubic feet per second.” A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed by the use of the factors.

“Second-feet per square mile” is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

“Run-off (depths in inches)” is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

An “acre-foot” is equivalent to 43,560 cubic feet and is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage and irrigation.

The following terms not in common use are here defined:

“Stage-discharge relation,” an abbreviation for the term “relation of gage height to discharge.”

“Control,” a term used to designate the section or sections of the stream below the gage which determine the stage-discharge relation at the gage. It should be noted that the control may not be the same at all stages.

The “point of zero flow” for a gaging station is that point on the gage—the gage height—to which the surface of the river falls when the discharge is reduced to zero.

TABLE NO. IX

### CONVERSION TABLES

The following tables afford a ready means of conversion between the terms in common use in hydraulic computations.

*Discharge in second-feet per square mile into run-off in depth in inches*

Discharge (second-feet per square mile)	Run-off (depth in inches)				
	1 day	28 days	29 days	30 days	31 days
1	0.03719	1.041	1.079	1.116	1.153
2	.07438	2.083	2.157	2.231	2.306
3	.11157	3.124	3.236	3.347	3.459
4	.14876	4.165	4.314	4.463	4.612
5	.18595	5.207	5.393	5.578	5.764
6	.22314	6.248	6.471	6.694	6.917
7	.26033	7.289	7.550	7.810	8.070
8	.29752	8.331	8.628	8.926	9.223
9	.33471	9.372	9.707	10.041	10.376

Note—For part of a month multiply the run-off for 1 day by the number of days.

*Discharge in second-feet into run-off in acre-feet.*

Discharge (second-feet)	Run-off (acre-feet)				
	1 day	28 days	29 days	30 days	31 days
1	1.983	55.54	57.52	59.50	61.49
2	3.967	111.1	115.0	119.0	123.0
3	5.950	166.6	172.6	178.5	184.5
4	7.934	222.1	230.1	238.0	246.0
5	9.917	277.7	287.6	297.5	307.4
6	11.90	333.2	345.1	357.0	368.9
7	13.88	388.8	402.6	416.5	430.4
8	15.87	444.3	460.2	476.0	491.9
9	17.85	499.8	517.7	535.5	553.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

*Discharge in second-feet into run-off in millions of cubic feet.*

Discharge (second-feet)	Run-off (millions of cubic feet)				
	1 day	28 days	29 days	30 days	31 days
1	0.0864	2.419	2.506	2.592	2.678
2	.1728	4.838	5.012	5.184	5.356
3	.2592	7.257	7.518	7.776	8.034
4	.3456	9.676	10.02	10.37	10.71
5	.4320	12.10	12.53	12.96	13.39
6	.5184	14.51	15.04	15.55	16.07
7	.6048	16.93	17.54	18.14	18.75
8	.6912	19.35	20.05	20.74	21.42
9	.7776	21.77	22.55	23.33	24.10

Note—For part of a month multiply the run-off for 1 day by the number of days.



Discharge in second-feet into run-off in millions of gallons.

Discharge (second-feet)	Run-off (millions of gallons)				
	1 day	28 days	29 days	30 days	31 days
1	0.6463	18.10	18.74	19.39	20.04
2	1.293	36.20	37.48	38.78	40.08
3	1.939	54.30	56.22	58.17	60.12
4	2.585	72.40	74.96	77.56	80.16
5	3.232	90.50	93.70	96.95	100.2
6	3.878	108.6	112.4	116.3	120.2
7	4.524	126.7	131.2	135.7	140.3
8	5.170	144.8	149.9	155.1	160.3
9	5.817	162.9	168.7	174.5	180.4

Note—For part of a month multiply the run-off for 1 day by the number of days.

Velocity in feet per second into velocity in miles per hour.

(1 foot per second=0.681818 mile per hour, or very nearly two-thirds mile per hour; 1 mile per hour=1.46666 feet per second. In computing the table the values 0.68182 and 1.4667 were used).

Feet per second (units)	Miles per hour for tenths of foot per second									
	0	1	2	3	4	5	6	7	8	9
0	0.000	0.068	0.136	0.205	0.273	0.341	0.409	0.477	0.545	0.614
1	.682	.750	.818	.886	.955	1.02	1.09	1.16	1.23	1.30
2	1.36	1.43	1.50	1.57	1.64	1.70	1.77	1.84	1.91	1.98
3	2.05	2.11	2.18	2.25	2.32	2.39	2.45	2.52	2.59	2.66
4	2.73	2.80	2.86	2.93	3.00	3.07	3.14	3.20	3.27	3.34
5	3.41	3.48	3.55	3.61	3.68	3.75	3.82	3.89	3.95	4.02
6	4.09	4.16	4.23	4.30	4.36	4.43	4.50	4.57	4.64	4.70
7	4.77	4.84	4.91	4.98	5.05	5.11	5.18	5.25	5.32	5.39
8	5.45	5.52	5.59	5.66	5.73	5.80	5.86	5.93	6.00	6.07
9	6.14	6.20	6.27	6.34	6.41	6.48	6.55	6.61	6.68	6.75

## CONVENIENT EQUIVALENTS.

## LENGTH

1 inch = 1/12 foot = 0.027778 yard = 0.000015783 mile = 2.54 centimeters.  
 1 foot = 12 inches = 1/3 yard = 0.00018939 mile = 0.3048 meter.  
 1 yard = 36 inches = 3 feet = 0.00056818 mile = 0.9144 meter.  
 1 mile = 63,360 inches = 5,280 feet = 1,760 yards = 1.60935 kilometers.  
 1 meter = 100 centimeters = 0.001 kilometer = 39.37 inches = 3.2808 feet = 1.0936 yards = 0.00062137 mile.

## SURFACE

1 square inch = 0.006944 square foot = 0.0007716 square yard = 0.000001594 acre = 0.000000002491 square mile = 6.45163 square centimeters.  
 1 square foot = 144 square inches = 1/9 square yard = 0.000022957 acre = 0.0000003587 square mile = 0.092903 square meter.  
 1 square yard = 1,296 square inches = 9 square feet = 0.0002066 acre = 0.000003228 square mile = 0.83613 square meter.  
 1 acre = 6,272,640 square inches = 43,560 square feet = 4,840 square yards = 0.0015625 square mile = 208.71 feet square = 0.404687 hectare.  
 1 square mile = 4,014,489,600 square inches = 27,878,400 square feet = 3,097,600 square yards = 640 acres = 259 hectares.  
 1 square meter = 10,000 square centimeters = 0.0001 hectare = 0.000001 square kilometer = 1,550 square inches = 10.7639 square feet = 1.19598 square yards = 0.0002471 acre = 0.0000003861 square mile.

## VOLUME

1 cubic inch = 0.004329 United States gallon = 0.0005787 cubic foot = 16.3872 cubic centimeters.  
 1 United States gallon = 231 cubic inches = 0.13368 cubic foot = 0.00000307 acre foot = 3.78543 liters.  
 1 cubic foot = 1,728 cubic inches = 7.4805 United States gallons = 0.037037 cubic yards = 0.000022957 acre-foot = 28.317 liters.  
 1 cubic yard = 46,656 cubic inches = 27 cubic feet = 0.00061983 acre-foot = 0.76456 cubic meter.  
 1 acre-foot = 325,851 United States gallons = 43,560 cubic feet = 1,613 1/3 cubic yards = 1,233.49 cubic meters.  
 1 cubic meter, stere, or kiloliter = 1,000,000 cubic centimeters = 1,000 liters = 61,023.4 cubic inches = 264.17 United States gallons = 35.3145 cubic feet = 1.30794 cubic yards = 0.000810708 acre-foot.

## HYDRAULICS

1 United States gallon of water weighs 8.34 pounds avoirdupois.  
 1 cubic foot of water weighs 62.5 pounds avoirdupois.  
 1 second-foot = 7.48 United States gallons per second = 448.8 United States gallons per minute = 26,929.9 United States gallons per hour = 646,317 United States gallons per day.  
 1 second-foot = 60 cubic feet per minute = 3,600 cubic feet per hour = 86,400 cubic feet per day = 31,536,000 cubic feet per year = 0.000214 cubic miles per year.  
 1 second-foot = 0.9917 acre-inch per hour = 1.983471 acre-feet per day = 723.966942 acre-feet per year.  
 1 second-foot = 0.028317 cubic meter per second = 1.699 cubic meters per minute = 101.941 cubic meters per hour = 2,446.58 cubic meters per day.  
 1 second-foot for 1 year (365 days) will cover 1 square mile 1.1312 feet or 13.5744 inches deep.  
 1 second-foot falling 10 feet = 1.135 horsepower.  
 100 United States gallons per minute = 0.223 second-foot = 0.442 acre-foot in one day.  
 1 million gallons per day = 1.55 second-foot = 3.07 acre-feet per day = 2.629 cubic meters per minute.  
 1 million gallons per month = 0.05525 second-foot for one 28-day month = 0.05334 second-foot for one 29-day month = 0.05157 second-foot for one 30-day month = 0.04990 second-foot for one 31-day month.  
 1,000,000,000 (1 United States billion) cubic feet = 11,570 second feet for one day = 413 second-feet for one 28-day month = 399 second-feet for one 29-day month = 386 second-feet for one 30-day month = 373 second-feet for one 31-day month.  
 1 horsepower = 1 second-foot falling 8.8 feet.  
 1 horsepower = 1 second-foot falling 11.0 feet, 80 per cent efficiency.  
 1 horsepower = 5,694,120 foot-gallons per day = 550 foot-pounds per second = 33,000 foot-pounds per minute = 1,980,000 foot-pounds per hour = 2,545 British thermal units per hour = 76 kilogrammeters per second = 1.27 kilogrammeters per minute = 746 watts.  
 1.3405 horsepower = 1 kilowatt.  
 1 inch deep on 1 square mile = 2,323,200 cubic feet = 0.0737 second-foot for 1 year.  
 1 foot deep (head of 1 foot) = 0.434 pound pressure on 1 square inch.  
 1 cubic meter per minute = 0.5886 second-foot = 4.403 United States gallons per second = 1.1674 acre-feet per day.  
 1 foot per second = 0.68 mile per hour = 1.097 kilometers per hour.  
 Acceleration of gravity, g = 32.16 feet per second.

## EXPLANATION OF DATA

The data presented in this report covers the period October 1, 1926, to September 30, 1927. At the first of January in most parts of the United States much of the precipitation in the preceding three months is stored as ground water, in the form of snow or ice or in ponds, lakes and swamps, and this stored water passes off in the streams during the spring break-up; at the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for a year beginning October 1 is practically all derived from precipitation within that year.

The base data collected at gaging station consists of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurement in determining the daily flow. The records of stage are obtained from direct reading on a chain or staff gage. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge.

From the discharge measurements rating tables are prepared that give the discharge for any stage. The application of the daily mean gage heights to these rating tables gives the daily discharge from which the monthly and yearly mean discharge are computed.

The data presented for each gaging station comprises a description of a station, a table giving results of discharge measurements, a table showing daily mean gage height, a table showing the daily discharge, and a table of monthly and yearly discharge and run-off.



Where the base data are insufficient to determine the daily discharge, tables giving daily mean gage heights and results of discharge measurements are published.

The description of the station gives, in addition to statements regarding location and equipment, information in regard to any conditions that may affect the permanence of the stage-discharge relation, covering such subjects as the occurrence of ice, shifting of control, and the cause and effect of backwater. It gives also information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded stages, and the accuracy of the records.

The table of daily discharge gives the discharge in second-feet corresponding to the mean of the gage heights read each day. At stations on streams subject to sudden or rapid diurnal fluctuation the discharge obtained from the rating table and the daily mean gage heights may not be the true mean discharge for the day.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest. As the gage height is the mean for the day it does not indicate correctly the stage when the water surface was at crest height, and the corresponding discharge was consequently larger than that given in the maximum column. Likewise, in the column headed "Minimum," the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet per second during the month. On this average flow computations recorded in the remaining columns are based.

#### ACCURACY OF FIELD DATA AND COMPUTED RECORDS

The accuracy of stream-flow data depends primarily (1) on the permanence of the stage-discharge relation and (2) on the accuracy of observation of stage, measurement of flow, and interpretation of records.

A paragraph in the description of the station gives information regarding (1) permanence of the stage-discharge relation, (2) precision with which the discharge rating curve is defined, (3) refinement of gage readings, (4) frequency of gage readings, and (5) methods of applying daily mean gage height to the rating table to obtain the daily discharge.

For the rating tables "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and depth of run-off in inches may be subject to some error caused by the inclusion of non-contributing districts in the measured drainage area, or by inability to interpret the effect of artificial regulation of the flow of the river above the station.

The table of monthly discharge gives only a general idea of the flow at the station and should not be used for other than preliminary estimates; the tables of daily discharge allow more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

The Commonwealth of Pennsylvania is divided into three main drainage basins; the Delaware, Susquehanna and Ohio. The hydrographic data in the following pages are divided into three groups, corresponding to these three basins. The stations in each basin are shown in the following tables and their location is indicated on the map (Plate II) with reference number corresponding to those given in the tables.

TABLE NO. X.

Gaging Stations in Delaware Basin\*

Station No.	Stream	Location
1	Lackawaxen River	West Hawley
2	Wallenpaupack Creek	Wilsonville
3	Shohola Creek	Shohola
4	Delaware River	Port Jervis, N. Y.
5	Bushkill Creek	Shoemakers
6	McMichaels Creek	Stroudsburg
7	Delaware River	Belvidere, N. J.
8	Lehigh River	Tannery
9	Little Lehigh Creek	Allentown
10	Lehigh River	Bethlehem
11	Delaware River	Riegelsville
12	Delaware River	Trenton, N. J.
13	Little Schuylkill River	Tamaqua
14	Schuylkill River	Reading
15	Schuylkill River	Pottstown
16	Perkiomen Creek	Graters Ford
17	Schuylkill River	Norristown
18	Brandywine Creek	Chadds Ford

\*For information available on each station, see description of station.



TABLE NO. XI.  
Gaging Stations in Susquehanna Basin\*

Station No.	Stream	Location
1	North Branch Susquehanna River	Binghamton, N. Y.
2	Chemung River	Corning, N. Y.
3	North Branch Susquehanna River	Towanda
4	Towanda Creek	Monroeton
5	Tunkhannock Creek	Dixon
6	Lackawanna River	Moosic
7	North Branch Susquehanna River	Wilkes-Barre
8	Wapwallopen Creek	Wapwallopen
9	Nescopeck Creek	St. Johns
10	Fishing Creek	Bloomsburg
11	North Branch Susquehanna River	Danville
12	West Branch Susquehanna River	Bower
13	Clearfield Creek	Dimeling
14	Driftwood Branch Sinnemahoning Creek	Sterling Run
15	West Branch Susquehanna River	Renovo
16	West Branch Susquehanna River	Lock Haven
17	Bald Eagle Creek	Milesburg
18	Bald Eagle Creek	Beech Creek Station
19	Pine Creek	Cedar Run
20	Lycoming Creek	Trout Run
21	West Branch Susquehanna River	Williamsport
22	Loyalsock Creek	Loyalsock
23	Susquehanna River	Sunbury
24	Frankstown Branch Juniata River	Williamsburg
25	Little Juniata River	Tyrone
26	Raystown Branch Juniata River	Saxton
27	Tuscarora Creek	Port Royal
28	Juniata River	Newport
29	Susquehanna River	Harrisburg
30	Little Swatara Creek	Pine Grove
31	Swatara Creek	Harpers
32	South Branch Codorus Creek	York
33	Codorus Creek	York

\*For information available on each station, see description of station.

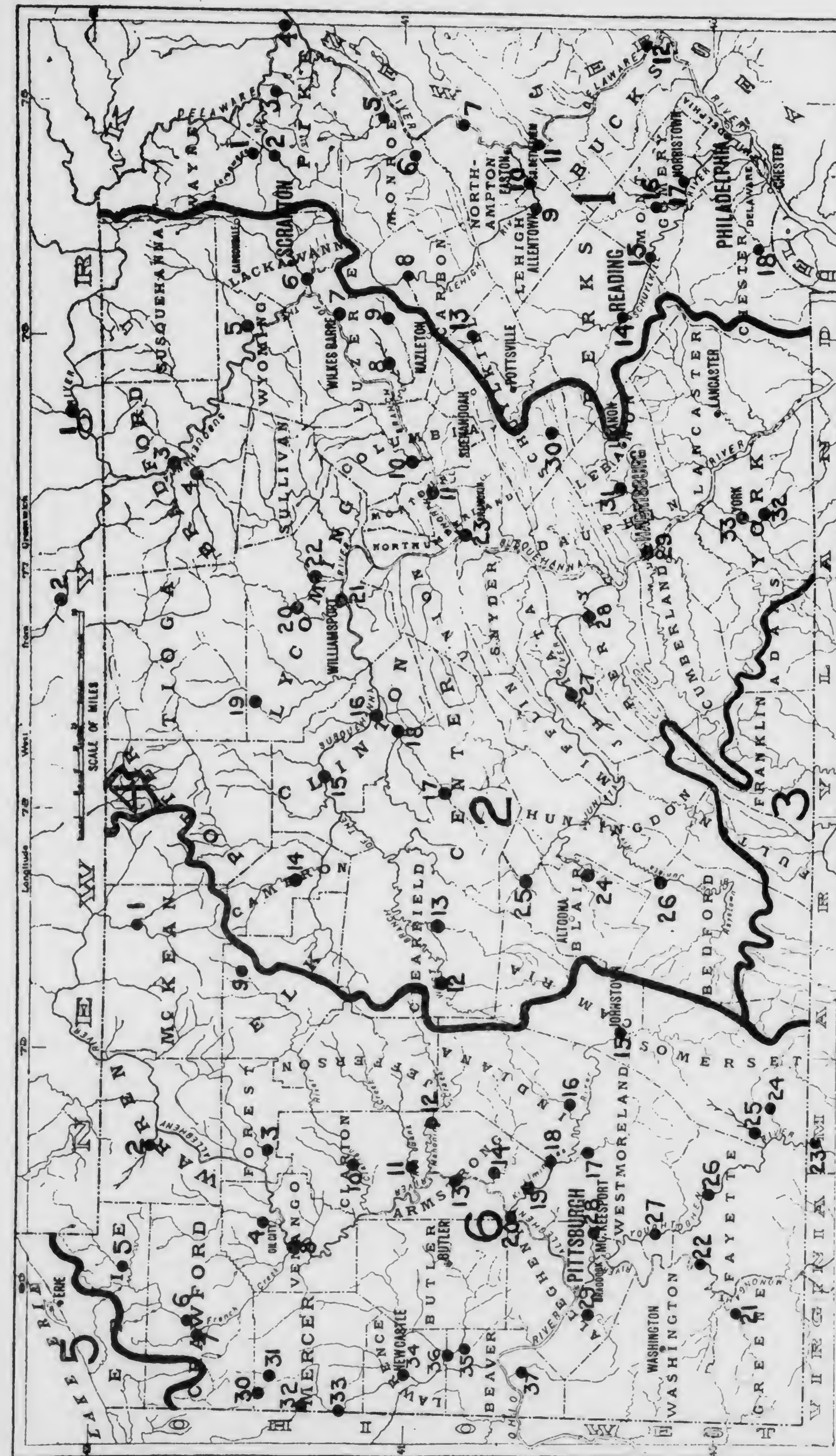
TABLE NO. XII.  
Gaging Station in Ohio Basin\*

Station No.	Stream	Location
1	Allegheny River	Larabee
2	Brokenstraw Creek	Youngsville
3	Tionesta Creek	Nebraska
4	Oil Creek	Rouseville
5	French Creek	Kimmeytown
6	French Creek	Saegertown
7	Cussewago Creek	Meadville
8	Allegheny River	Franklin
9	East Branch Clarion River	Instanter
10	Clarion River	Piney
11	Red Bank Creek	Saint Charles
12	Mahoning Creek	Dayton
13	Allegheny River	Kittanning
14	Crooked Creek	Hileman's Farm
15	Stony Creek	Johnstown
16	Blacklick Creek	Blacklick
17	Loyalhanna Creek	New Alexandria
18	Kiskiminitas River	Avonmore
19	Kiskiminitas River	Vandergrift
20	Allegheny River	Freeport
21	South Fork Ten Mile Creek	Pollock's Mill
22	Monongahela River	South Brownsville
23	Youghiogheny River	Friendsville, Md.
24	Casselman River	Markleton
25	Laurel Hill Creek	Ursina
26	Youghiogheny River	Connellsville
27	Youghiogheny River	Sintersville
28	Turtle Creek	Trafford
29	Chartiers Creek	Carnegie
30	Shenango River	Jamestown
31	Little Shenango River	Greenville
32	Pymatuning Creek	Orangeville
33	Shenango River	Sharon
34	Shenango River	New Castle
35	Connoquenessing Creek	Hazen
36	Slippery Rock Creek	Wurtemburg
37	Raccoon Creek	Moffatt's Mill

\*For information available on each station, see description of station.

DEPARTMENT OF FORESTS AND WATERS  
WATER RESOURCES SERVICE

Map showing location of Gaging Stations for the year ending September 30, 1927.



Legend.—Drainage Basins—(1) Delaware, (2) Susquehanna, (3) Potomac, (4) Genesee, (5) Erie, (6) Ohio.

PLATE II



## GAGING STATION RECORDS

### DELAWARE BASIN

### DELAWARE BASIN—STATION NO. 1

#### LACKAWAXEN RIVER NEAR WEST HAWLEY

*Location.*—At single-span steel highway bridge, known as Riverside Bridge, West Hawley, Wayne County, about one-half mile upstream from the mouth of Middle Creek.

*Drainage Area.*—212 square miles.

*Records Available.*—May 19, 1921, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by F. C. Tyce.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both sides of the channel are outlined by retaining walls downstream from the bridge. Banks are of medium height and subject to overflow at extremely high stages. Bed is composed of gravel. Control is at riffle about 50 feet downstream from the gage, where the bed is composed of coarse gravel.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 10.5 feet at 1.10 a. m. November 17 (discharge, about 7,700 second-feet); minimum 1.10 feet at 6.35 a. m. July 16 (discharge, 47 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined from 50 to 500 second-feet and fairly well defined between 500 and 3,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for discharge above 500 second-feet when they may be only fair.

*Discharge measurements of Lackawaxen River near West Hawley during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
13	Oct. 9	Geo. Weber	2.28	385
14	Sept. 28	J. M. Snively	1.42	97.9
15	Sept. 28	do	1.42	96.1

Daily Mean Gage Height, in feet, of Lackawaxen River near West Hawley, for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.73	2.35	2.61	1.98	3.45	2.53	2.30	1.97	2.50	1.50	2.36	2.44
2	1.75	2.22	2.30	2.02	3.22	2.14	2.32	1.91	2.25	1.46	2.70	4.09
3	1.69	2.10	2.05	2.00	3.30	2.05	2.30	1.83	2.13	1.42	2.02	3.05
4	1.71	2.01	2.10	1.94	4.00	2.04	2.41	1.94	2.08	1.38	1.80	2.50
5	1.81	1.95	1.79	1.94	3.11	2.06	2.44	1.91	2.39	1.38	1.67	2.22
6	4.29	1.94	2.15	1.92	2.94	2.14	2.58	1.88	2.14	1.46	1.55	2.09
7	3.27	1.87	2.26	1.94	2.64	2.17	2.98	1.77	2.00	1.41	1.54	1.93
8	2.51	1.89	2.19	1.98	2.19	3.44	2.56	1.72	1.92	1.35	1.52	1.84
9	2.31	1.88	2.13	2.03	2.15	4.30	2.38	1.83	1.31	1.54	1.76	
10	2.27	3.81	2.06	2.06	2.15	4.00	2.28	2.78	1.76	1.28	1.48	1.69
11	2.18	2.71	2.03	2.03	2.15	4.00	2.19	3.32	1.70	1.29	1.46	1.71
12	2.05	2.34	1.97	2.16	2.09	4.25	2.13	2.65	1.65	1.31	1.31	1.72
13	2.01	2.19	1.95	2.15	2.01	4.98	2.08	2.39	1.55	1.26	1.33	1.64
14	2.07	2.18	1.96	2.06	1.99	5.88	1.95	2.30	1.63	1.22	1.64	1.67
15	1.90	2.08	2.11	2.23	2.00	5.48	1.89	3.12	1.68	1.24	2.24	1.61
16	1.80	5.55	2.18	2.24	1.91	4.45	1.83	2.69	1.62	1.15	1.72	1.57
17	1.82	6.88	2.13	2.23	2.04	4.02	1.85	2.50	1.53	1.14	1.59	1.50
18	1.91	4.30	2.24	2.23	2.69	3.88	1.81	2.48	1.46	1.26	1.60	1.49
19	1.88	4.75	2.35	2.24	2.85	3.78	1.69	2.48	1.53	1.23	1.78	1.61
20	2.59	3.75	2.46	2.42	2.56	3.75	1.70	2.61	1.99	1.24	1.58	1.61
21	2.38	3.22	2.16	3.37	2.46	5.55	1.69	2.26	1.72	1.42	1.50	1.53
22	2.24	2.93	2.06	4.86	2.36	5.10	2.10	2.17	1.62	1.80	1.50	1.49
23	2.07	2.71	2.09	6.20	2.39	3.78	2.41	2.30	1.52	2.71	1.48	1.42
24	2.12	2.60	1.98	5.30	2.94	3.30	2.05	5.40	1.49	2.53	1.46	1.38
25	3.84	2.45	1.96	4.58	3.02	2.99	1.97	5.05	1.39	2.02	1.42	1.33
26	3.14	2.41	1.82	4.35	3.52	2.79	2.07	5.29	2.43	1.72	1.36	1.39
27	2.72	3.22	2.08	3.92	2.87	2.71	2.32	4.26	2.04	1.64	1.81	1.23
28	2.49	2.64	2.09	4.25	2.55	2.64	2.52	3.29	1.75	1.66	1.79	1.28
29	2.33	2.45	2.10	3.82	2.69	2.21	2.81	1.60	1.62	3.26	1.17	
30	2.23	2.64	2.03	3.40	2.52	2.05	2.61	1.54	1.56	2.79	1.21	
31	2.31	2.08	2.08	4.22	2.45	2.53	2.58	1.78	2.26			

NOTE—Stage-discharge relation Dec. 6-14, 18-21 and Dec. 25 to Feb. 4 affected by ice.

Daily discharge, in second-feet, of Lackawaxen River near West Hawley, for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	189	412	520	200	800	498	392	270	475	122	412	454
2	196	352	392	200	650	334	392	248	372	112	570	1,440
3	176	315	298	190	750	298	392	222	334	103	280	725
4	182	280	315	180	850	298	432	259	315	94	212	475
5	215	262	209	180	780	298	454	248	432	94	170	352
6	1,580	259	180	170	698	334	520	238	334	112	136	315
7	900	235	180	160	545	334	725	202	280	100	133	256
8	475	242	180	160	352	960	498	186	252	88	127	225
9	392	238	220	160	334	1,580	432	432	222	79	133	199
10	372	1,230	240	150	334	1,370	392	620	199	74	117	176
11	352	570	240	150	334	1,370	352	900	179	75	112	182
12	298	412	220	140	315	1,510	334	545	164	79	79	186
13	280	352	220	130	280	2,100	315	432	196	70	83	161
14	298	352	240	120	276	2,860	262	392	158	63	161	170
15	245	315	315	120	280	2,520	242	780	173	67	372	152
16	212	2,600	352	110	248	1,650	222	570	155	54	186	141
17	219	3,780	334	110	298	1,370	228	475	130	52	146	122
18	248	1,580	280	100	570	1,300	215	475	112	70	149	120
19	238	1,950	220	100	645	1,230	176	475	130	65	205	152
20	520	1,230	220	180	498	1,230	179	520	276	67	144	152
21	432	840	220	480	454	2,600	176	372	186	103	122	130
22	372	698	298	1,200	412	2,180	315	334	155	212	122	120
23	298	570	315	1,900	432	1,230	432	392	127	570	117	103
24	315	520	273	1,600	698	900	298	2,430	120	498	112	94
25	1,230	454	220	1,000	725	725	270	2,100	96	280	103	83
26	780	432	180	550	1,020	620	298	2,340	454	186	90	96
27	570	840	200	360	645	570	392	1,580	298	161	215	65
28	475	545	220	360	498	545	475	900	196	167	209	74
29	412	454	220	480	570	352	620	149	155	900	56	
30	372	545	200	750	475	298	520	133	138	620	72	
31	392	200	900	454	498	498	205	372				

NOTE—Discharge Dec. 6-14, 18-21 and Dec. 25 to Feb. 4 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Bushkill Creek near Shoemakers, Tunkhannock Creek at Dixon and Lackawanna River at Moosic.

Monthly discharge of Lackawaxen River near West Hawley, for the year ending Sept. 30, 1927.  
(Drainage area 212 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,580	176	427	2.01	2.32
November	3,780	235	762	3.59	4.00
December	520	180	256	1.21	1.40
January	1,900	100	406	1.92	2.21
February	1,020	248	526	2.48	2.58
March	2,860	298	1,110	5.24	6.04
April	725	176	349	1.65	1.84
May	2,430	186	664	3.13	3.61
June	475	96	225	1.06	1.18
July	570	52	139	.656	.76
August	900	79	223	1.05	1.21
September	1,440	56	235	1.11	1.24
The Year	3,780	52	443	2.09	23.39

#### DELAWARE BASIN—STATION NO. 2

#### WALLENPAUPACK CREEK AT WILSONVILLE

*Location.*—At two-span steel highway bridge, about one and a half miles south of Hawley, at Wilsonville, Wayne County, previous to the construction of the Pennsylvania Power and Light Company Dam, a short distance downstream from the gaging station.

The dam was closed on November 3, 1925, and since the Power and Light Company began operating their plant, located on the southerly side of the Lackawaxen River about two and a half miles downstream from Hawley, the flow of Wallenpaupack Creek has been diverted from the storage created by the Wilsonville Dam through about three miles of pipe line to their plant.

*Drainage Area.*—227 square miles.

*Records Available.*—July 3, 1908, to September 30, 1927, excepting August 1 to September 14, 1923, and September 1 to November 11, 1924.

*Measurements.*—Monthly flow of stream computed from power house data.

*Cooperation.*—Record furnished by Pennsylvania Power and Light Company, Allentown, Pennsylvania.



Monthly discharge of Wallenpaupack Creek at Wilsonville, for the year ending  
Sept. 30, 1927.  
(Drainage area 227 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October			270	1.19	1.37
November			1,151	5.07	5.66
December			287	1.26	1.45
January			371	1.63	1.88
February			573	2.52	2.62
March			950	4.19	4.83
April			369	1.63	1.82
May			545	2.40	2.77
June			238	1.05	1.17
July			135	.595	.69
August			265	1.17	1.35
September			285	1.26	1.41
The Year			454	2.00	27.02

#### DELAWARE BASIN—STATION NO. 3

#### SHOHOLA CREEK NEAR SHOHOLA

*Location.*—At single-span steel highway bridge about one and three-quarter miles south of Shohola, Pike County.

*Drainage Area.*—82 square miles.

*Records Available.*—February 19, 1919, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Walter P. Hess.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is high and not subject to overflow; left is of medium height and overflows during extremely high stages. Bed is composed of coarse gravel and large stones. Control is at the first of a series of riffles about 150 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year estimated from hydrograph, 4.6 feet at 10 p. m. November 16 (discharge, 1,610 second-feet); minimum, 1.4 feet at 6.30 a. m. July 21 (discharge, 27 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 8 and 250 second-feet and fairly well defined from 250 to 1,000 second-feet. Gage read to tenths once daily; during high stages more frequently. Daily discharge ascertained by applying to rating table daily mean gage height, computed from a continuous daily hydrograph, obtained by plotting gage readings. Results good except for discharges above 250 second-feet when they may be only fair.

*Cooperation.*—Station is maintained in cooperation with Gannett, Seelye & Fleming, Inc., Engineers, Harrisburg, Pennsylvania.

Discharge measurements of Shohola Creek near Shohola during the year ending  
Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
14	Oct. 9a	J. M. Snively	1.74	60.0
15	9a	do	1.73	64.8
16	Sept. 28b	do	1.62	61.2
17	28b	do	1.62	58.7

a Measurement made by wading 200 feet downstream from gage.  
b Measurement made by wading 50 feet downstream from gage.

Daily Mean Gage Height, in feet, of Shohola Creek near Shohola for the year ending  
Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	2.8	2.6	2.5	3.5	2.5	2.5	2.1	2.3	1.9	1.6	3.7
2	1.9	2.8	2.6	2.5	3.5	2.5	2.3	2.1	2.3	1.9	2.3	4.0
3	1.9	2.4	2.5	2.5	3.5	2.5	2.3	2.1	2.3	1.9	2.3	3.5
4	1.8	2.4	2.5	2.5	3.4	2.2	2.3	2.1	2.1	1.9	2.3	3.3
5	1.8	2.4	2.2	2.4	3.2	2.2	2.3	2.1	2.1	1.7	2.0	3.3
6	2.0	2.4	2.2	2.2	3.2	2.2	2.3	2.1	2.1	1.6	1.8	2.8
7	2.0	2.1	2.2	2.2	3.2	2.2	2.0	2.1	2.1	1.6	1.8	2.8
8	2.0	2.1	2.3	2.2	2.6	2.3	2.2	2.0	2.0	1.6	1.7	2.5
9	1.8	2.4	2.3	2.2	2.6	2.5	2.2	2.1	2.0	1.6	1.7	2.5
10	1.6	2.4	2.3	2.2	2.7	2.5	2.2	2.75	2.0	1.6	1.8	2.2
11	1.6	2.5	2.3	3.1	2.7	2.5	2.0	3.35	2.0	1.6	1.6	2.2
12	1.6	2.5	2.2	3.1	2.6	2.7	2.0	3.25	2.0	1.6	1.6	2.2
13	1.6	2.4	2.2	3.1	2.6	3.1	2.0	2.9	1.9	1.6	1.6	2.0
14	1.7	2.3	2.2	3.1	2.6	3.1	2.0	2.7	1.9	1.6	1.5	2.0
15	1.7	2.2	2.1	3.1	2.7	3.5	2.0	2.8	2.0	1.6	2.2	2.0
16	1.7	3.4	2.1	3.2	2.4	3.5	2.0	2.5	1.9	1.6	2.1	1.9
17	1.6	4.45	2.1	2.9	2.4	3.2	2.1	2.5	1.9	1.5	2.1	1.9
18	1.7	4.3	2.1	2.7	2.5	3.2	2.0	2.4	1.9	1.5	2.1	1.9
19	1.8	3.9	2.0	2.7	2.6	3.25	2.0	2.4	1.7	1.5	2.1	1.9
20	1.8	3.5	2.1	2.7	2.6	3.75	2.1	2.4	1.7	1.5	2.1	1.9
21	2.0	3.4	2.6	3.0	2.5	3.7	1.9	2.4	1.7	1.4	2.1	1.8
22	2.0	3.2	2.6	3.0	2.5	3.2	1.95	2.4	2.0	1.5	2.0	1.8
23	2.0	2.8	2.6	3.0	2.5	3.0	2.5	2.7	2.0	2.1	2.0	1.8
24	2.0	2.8	2.5	3.2	2.4	3.0	2.45	2.8	2.0	2.4	1.7	1.8
25	2.5	2.9	2.3	3.7	2.5	2.7	2.3	3.0	2.0	2.4	1.7	1.8
26	2.9	2.5	2.3	3.7	2.5	2.7	2.2	3.0	2.0	2.3	1.7	1.8
27	2.9	2.5	2.3	3.7	2.6	2.7	2.2	2.9	2.0	2.3	1.7	1.8
28	2.9	2.5	2.4	3.6	2.5	2.5	2.2	2.6	2.0	2.3	1.7	1.8
29	2.9	2.6	2.4	3.6	2.5	2.5	2.2	2.6	2.0	2.3	1.7	1.8
30	2.8	2.6	2.4	3.6	2.5	2.5	2.2	2.6	2.0	2.3	1.7	1.8
31	2.8		2.4	3.6	2.5	2.5	2.2	2.6	2.0	2.3	1.7	1.8

NOTE—Stage-discharge relation Dec. 4-14 and Dec. 17 to Feb. 23 affected by ice.



Daily discharge, in second-feet, of Shohola Creek near Shohola for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	97	364	285	110	320	250	250	139	189	97	97	868
2	97	364	285	100	280	250	189	139	189	97	189	1,090
3	97	218	250	100	260	250	189	139	189	97	189	735
4	79	218	160	100	240	163	189	139	139	97	189	614
5	79	218	126	110	220	163	189	139	139	63	117	614
6	117	218	95	110	200	163	189	139	139	49	79	364
7	117	139	95	110	190	163	117	139	139	49	79	364
8	117	139	120	95	180	189	163	117	117	49	63	250
9	79	218	140	90	180	250	163	139	117	49	63	250
10	49	218	150	80	160	250	163	344	117	49	79	163
11	49	250	140	70	160	250	117	644	117	49	49	163
12	49	250	130	70	160	323	117	586	117	49	49	163
13	49	218	130	65	150	505	117	408	97	49	49	117
14	63	189	140	65	150	505	117	323	97	49	37	117
15	63	163	139	65	150	735	117	364	117	49	163	117
16	63	673	139	60	150	735	117	250	97	49	139	97
17	49	1,430	130	60	160	558	139	250	97	37	139	97
18	63	1,340	120	55	220	558	117	218	97	37	139	97
19	79	1,010	110	55	240	586	117	218	63	37	139	97
20	79	735	110	65	240	894	139	218	63	37	139	97
21	117	673	120	95	220	868	97	218	63	27	139	79
22	117	558	130	200	200	558	107	218	117	37	117	79
23	117	364	190	360	200	455	250	323	117	139	117	79
24	117	364	180	360	218	455	234	364	117	218	63	79
25	250	408	160	280	250	323	189	455	117	218	63	79
26	408	250	150	220	250	323	163	455	117	189	63	79
27	408	250	140	180	285	323	163	408	117	189	189	63
28	408	250	130	150	250	250	163	408	117	189	268	63
29	408	285	120	140	-----	250	218	285	117	97	558	37
30	364	285	110	190	-----	250	163	285	97	79	673	37
31	364	-----	110	320	-----	250	-----	285	-----	79	673	-----

NOTE.—Discharge Dec. 4-14 and Dec. 17 to Feb. 23 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Lackawaxen River near West Hawley, Bushkill Creek near Shoemakers and Lackawanna River at Moosic.

Monthly discharge of Shohola Creek near Shohola for the year ending Sept. 30, 1927.  
(Drainage area 82 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	408	49	149	1.82	2.10
November	1,430	139	409	4.99	5.57
December	285	95	147	1.79	2.06
January	360	55	133	1.62	1.87
February	320	150	210	2.56	2.67
March	894	163	389	4.74	5.46
April	250	97	159	1.94	2.16
May	644	117	282	3.44	3.97
June	189	63	118	1.44	1.61
July	218	27	83.8	1.02	1.18
August	673	49	165	2.01	2.32
September	1,090	37	238	2.90	3.24
The Year	1,430	27	207	2.52	34.21

DELAWARE BASIN—STATION NO. 4

## DELAWARE RIVER AT PORT JERVIS, N. Y.

*Location.*—At steel highway bridge, Port Jervis, Orange County, 1½ miles upstream from mouth of Neversink River, and 6 miles downstream from mouth of Mongaup River.

*Drainage Area.*—3,070 square miles (measured on topographic maps).

*Records Available.*—October 12, 1904, to September 30, 1927.

*Equipment.*—Chain gage on downstream side of left span of highway bridge. Also staff gage in two sections; upper section (vertical) attached to downstream end of left abutment; lower section (inclined) 30 feet downstream.

Discharge measurements made from downstream side of highway bridge or by wading.

*Channel and Control.*—Bed of stream composed of gravel. Banks high and not subject to overflow. Control composed of gravel; shifts occasionally.

*Extremes of Discharge.*—Maximum stage recorded during year, 13.5 feet at 8 a. m. November 17 (discharge, 71,500 second-feet); minimum stage recorded, 1.65 feet several times July 12-21 (discharge, 898 second-feet).

1904-1927: Maximum discharge recorded, 92,700 second-feet at 8 a. m. March 28, 1914 (gage height, 16.0 feet); minimum stage recorded, 0.60 foot at 8 a. m. September 22 and 23, 1908 (discharge, 175 second-feet).

During the flood of October 10-11, 1903, a crest stage of 23.3 feet gage height was observed by Mr. Righter, city engineer of Port Jervis. This gage height corresponds to a discharge of about 155,000 second-feet.

*Diversions and Regulations.*—Operation of power plants on tributary streams may cause slight diurnal fluctuation during low stages.

*Accuracy.*—Stage-discharge relation practically permanent during year except as affected by ice. Rating curve well defined by 21 discharge measurements between 600 and 30,000 second-feet; extended beyond these limits. Six of the measurements, covering a range from 2,700 to 16,700 second-feet, were made during the current year and check the curve. Gage read to quarter-tenths twice daily. Daily discharge ascertained by applying mean daily gage height to rating



table, or, for days of considerable fluctuation in stage, by constructing a gage-height graph on basis of the daily gage readings and averaging discharge for intervals of the day, except for period of ice effect as indicated in footnote to daily-discharge table. Records good except those for period of ice effect, which are fair.

*Cooperation.*—Record furnished by United States Geological Survey Office, Albany, New York.

*Discharge measurements of Delaware River at Port Jervis, N. Y., during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
103	Oct. 8	Bigwood & Harrington	4.55	7,990
104	Feb. 4	B. L. Bigwood	4.50	7,700
105	27	do	5.38	11,500
106	Mar. 24	K. K. Hoyt	6.35	16,700
107	June 21	do	2.74	2,720
108	Aug. 17	Harrington & Harrington	2.97	3,100

*Daily discharge, in second-feet, of Delaware River at Port Jervis, N. Y., for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,540	6,460	7,580	3,000	12,200	7,980	6,820	5,760	7,980	1,800	3,200	9,550
2	2,150	6,820	6,460	3,000	9,660	6,100	6,460	5,760	7,580	1,550	5,240	25,700
3	1,800	6,100	5,420	2,800	7,980	5,760	6,460	5,100	6,820	1,320	3,950	26,200
4	1,550	5,760	4,800	2,800	7,200	4,800	6,460	4,800	5,100	1,320	3,690	16,400
5	2,060	5,420	4,220	2,800	6,820	4,800	6,460	5,100	5,760	1,180	2,970	10,600
6	2,040	5,100	3,690	2,800	6,460	5,100	6,100	4,500	5,100	1,320	2,440	9,060
7	11,200	4,800	3,600	3,000	5,420	5,100	6,460	3,950	5,420	1,470	2,150	7,980
8	7,980	3,950	3,600	2,800	5,100	7,310	5,760	3,950	4,500	1,630	1,800	5,420
9	5,420	4,300	3,400	2,600	4,800	18,400	5,420	3,920	3,690	1,400	1,630	4,500
10	4,500	8,840	3,400	2,400	4,800	15,600	5,420	5,640	2,970	1,180	2,060	3,950
11	3,690	13,400	3,600	2,200	4,500	17,000	5,100	11,400	2,750	950	1,800	3,690
12	3,950	9,660	3,600	2,200	4,220	18,200	4,800	10,600	2,750	950	1,630	3,950
13	3,690	7,580	3,800	2,400	4,220	23,100	4,500	7,980	2,340	950	1,550	3,690
14	3,690	6,460	4,000	2,400	4,220	40,200	4,500	6,500	2,540	898	1,550	3,690
15	3,440	6,460	4,000	2,200	3,690	46,800	4,220	7,200	2,150	898	2,590	2,970
16	3,200	8,720	3,600	2,200	3,690	28,500	4,220	6,820	1,800	898	4,840	2,750
17	2,970	58,200	3,400	2,200	4,220	34,100	3,690	6,460	1,470	1,060	3,690	2,640
18	3,690	42,900	3,200	2,400	5,760	27,800	3,690	6,460	1,550	898	3,440	2,340
19	3,950	26,400	3,000	2,800	7,980	26,200	3,440	6,460	1,630	950	3,200	2,150
20	3,950	22,700	3,000	3,400	7,200	24,800	3,200	6,460	2,750	1,120	3,030	2,150
21	4,500	17,000	3,000	3,800	6,820	26,200	3,080	6,100	2,440	950	2,750	2,240
22	4,800	12,500	3,200	4,800	5,420	33,200	3,950	4,800	2,150	1,400	1,970	2,150
23	5,420	10,600	3,600	12,000	5,420	26,200	5,850	4,800	2,440	1,870	1,970	2,060
24	5,420	8,800	3,400	17,000	6,100	18,800	6,100	9,230	1,970	5,020	1,630	2,750
25	6,750	7,980	3,200	13,000	7,200	14,600	5,760	30,000	1,800	4,500	1,550	2,150
26	13,300	6,820	3,000	9,500	12,000	12,500	5,100	30,400	2,240	2,340	1,800	1,970
27	11,500	7,980	3,000	6,000	10,100	9,220	5,420	26,200	3,990	1,800	2,640	1,720
28	8,800	10,100	3,000	5,000	8,380	8,800	6,580	17,200	4,910	1,800	4,500	1,630
29	7,200	9,220	2,800	6,100	7,980	7,580	13,500	3,370	1,720	11,300	1,550	1,550
30	6,100	8,380	3,200	7,580	7,580	7,200	11,000	1,880	1,630	16,100	1,820	1,820
31	6,460	-----	3,200	10,100	7,200	-----	8,380	-----	1,970	10,500	-----	-----

NOTE.—Discharge, Dec. 7 to Jan. 28, determined from gage heights corrected for ice effect on basis of observer's notes, weather records, and comparison with records at other stations in Delaware River basin. Gage not read Jan. 16-20 owing to ice jam; discharge determined from comparative studies.

*Monthly discharge of Delaware River at Port Jervis, N. Y., for the year ending Sept. 30, 1927.*

(Drainage area 3,070 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	13,300	1,550	5,090	1.66	1.91
November	58,200	3,950	12,000	3.91	4.36
December	7,580	2,800	3,740	1.22	1.41
January	17,000	2,200	4,750	1.55	1.79
February	12,200	3,690	6,480	2.11	2.20
March	46,800	4,800	17,400	5.67	6.54
April	7,580	3,080	5,330	1.74	1.94
May	30,400	3,920	9,240	3.01	3.47
June	7,980	1,470	3,460	1.13	1.26
July	5,020	898	1,570	.511	.59
August	16,100	1,550	3,650	1.19	1.37
September	26,200	1,320	5,650	1.84	2.05
The Year	58,200	898	6,530	2.13	28.89

DELAWARE BASIN—STATION NO. 5

## BUSHKILL CREEK NEAR SHOEMAKERS

*Location.*—At single-span steel highway bridge, about three quarters of a mile northwest of Shoemakers, Monroe County.

*Drainage Area.*—115 square miles.

*Records Available.*—September 19, 1908, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Mary F. Reidmiller.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of gravel and boulders. Control is at the first of a series of riffles, a short distance downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph 5.5 feet at 10 p. m. November 16 (discharge, about 1,790 second-feet); minimum, 1.39 feet at 7 a. m. July 14 (discharge, 54 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 20 and 300 second-feet



and fairly well defined from 300 to 800 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they are fair.

Discharge measurements of Bushkill Creek near Shoemakers during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
46	Oct. 9	J. M. Snavely	Feet 1.76	Sec.-ft. 122
47	Sept. 28a	do	1.58	84.5

a Measurement made by wading 200 feet upstream from gage.

Daily Mean Gage Height, in feet, of Bushkill Creek near Shoemakers for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.68	2.45	2.47	2.26	2.71	2.37	2.22	2.22	2.36	1.76	2.35	2.89
2	1.58	2.38	2.35	2.42	2.64	2.32	2.25	2.13	2.26	1.70	2.64	3.36
3	1.58	2.34	2.19	2.33	2.63	2.18	2.22	2.08	2.20	1.67	2.47	3.23
4	1.52	2.26	2.25	2.27	2.62	2.19	2.17	2.07	2.12	1.63	2.32	2.98
5	1.48	2.19	2.12	2.17	2.61	2.19	2.14	2.11	2.30	1.57	2.15	2.78
6	1.92	2.15	2.30	2.14	2.55	2.18	2.16	2.08	2.22	1.56	2.03	2.64
7	1.97	2.08	2.36	2.04	2.52	2.16	2.14	2.00	2.08	1.58	1.97	2.50
8	1.88	2.04	2.32	2.40	2.43	2.01	1.93	2.02	1.58	1.97	2.38	
9	1.76	2.26	2.21	2.50	2.38	2.62	2.00	1.94	1.96	1.52	2.11	2.30
10	1.70	2.66	2.14	2.50	2.42	2.65	1.97	2.01	1.90	1.52	1.97	2.18
11	1.69	2.43	2.11	2.48	2.40	2.73	1.93	2.15	1.91	1.50	1.89	2.13
12	1.63	2.33	2.10	2.46	2.38	2.93	1.89	2.06	1.82	1.47	1.84	2.04
13	1.60	2.27	2.01	2.44	2.38	3.25	1.84	2.00	1.74	1.42	1.89	1.98
14	1.70	2.22	2.04	2.32	2.38	3.49	1.80	1.99	1.75	1.41	2.57	1.95
15	1.70	2.22	2.12	2.29	2.34	3.52	1.78	2.23	1.84	1.72	3.22	1.89
16	1.65	3.56	2.08	2.45	2.25	3.33	1.74	2.18	1.74	1.70	2.72	1.83
17	1.66	4.72	2.41	2.44	2.23	3.13	1.70	2.10	1.68	1.88	2.51	1.79
18	1.68	3.96	2.13	2.41	2.39	2.98	1.74	2.07	1.64	1.77	2.47	1.75
19	1.72	3.77	2.22	2.35	2.38	2.91	1.74	2.12	1.87	1.61	2.41	1.93
20	1.80	3.44	2.41	2.38	2.27	2.86	1.74	2.13	2.54	1.54	2.29	2.10
21	2.06	3.18	1.97	2.66	2.33	3.05	1.68	2.02	2.26	1.49	2.19	1.95
22	1.98	3.01	1.95	2.74	2.33	3.07	2.26	1.97	2.04	2.21	2.13	1.83
23	1.92	2.85	2.05	2.91	2.30	2.81	2.38	1.97	1.96	3.08	2.05	1.77
24	1.89	2.69	2.24	2.89	2.35	2.71	2.19	2.72	1.90	3.39	1.99	1.69
25	2.98	2.62	2.15	2.81	2.43	2.63	2.05	3.02	1.79	3.01	1.91	1.65
26	3.12	2.58	2.04	2.72	2.70	2.51	2.01	2.97	2.22	2.73	1.88	1.61
27	2.87	2.78	2.36	2.79	2.56	2.57	2.24	2.74	2.06	2.59	2.63	1.55
28	2.72	2.59	2.52	2.92	2.49	2.61	2.53	2.63	1.96	2.40	2.70	1.54
29	2.58	2.46	2.54	2.94		2.41	2.37	2.53	1.83	2.34	2.94	1.56
30	2.50	2.50	2.47	2.84		2.32	2.27	2.46	1.78	2.23	2.85	1.55
31	2.48		2.46	2.80		2.28		2.40		2.31	2.72	

NOTE—Stage-discharge relation Dec. 6-10, 17-20 and Dec. 27 to Feb. 16 affected by ice.

Daily discharge, in second-feet, of Bushkill Creek near Shoemakers for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	98	383	392	160	460	347	281	281	342	116	338	593
2	80	351	338	160	420	325	294	243	298	102	476	828
3	80	334	268	160	400	264	281	222	272	96	392	734
4	71	298	294	160	380	268	259	218	238	89	325	640
5	65	268	238	160	360	268	247	234	316	78	251	546
6	162	251	190	160	340	264	255	222	281	77	202	476
7	180	222	160	160	320	255	247	190	222	80	180	406
8	149	206	170	150	300	374	194	166	198	80	180	351
9	116	298	190	140	280	452	190	169	176	71	234	316
10	102	476	200	130	280	476	180	194	155	71	180	264
11	100	374	234	120	260	522	166	251	159	68	152	243
12	89	329	230	110	240	616	152	214	132	64	138	206
13	83	303	194	110	240	734	138	190	112	58	152	183
14	102	281	206	100	220	875	126	186	114	56	429	172
15	102	281	238	100	220	875	121	285	138	107	734	152
16	92	922	222	95	260	781	112	264	112	102	499	135
17	94	1,420	200	90	285	687	124	230	98	149	406	124
18	98	1,110	190	90	356	640	112	218	91	119	392	114
19	107	1,020	190	110	351	593	112	238	146	85	365	166
20	126	828	180	190	303	570	112	243	429	74	312	230
21	214	734	180	400	329	640	98	198	298	67	268	172
22	183	640	172	500	329	687	298	180	206	276	243	135
23	162	570	210	550	316	546	351	180	176	687	210	119
24	152	499	290	400	338	499	268	499	155	828	186	100
25	640	452	251	280	374	476	210	640	124	640	159	92
26	687	452	206	240	499	406	194	616	281	522	149	85
27	570	546	170	240	429	429	290	522	214	452	476	76
28	499	452	170	260	401	452	429	476	176	360	499	74
29	452	388	180	340		365	347	429	135	334	616	77
30	406	406	190	460		325	303	388	121	285	570	76
31	397		170	480		307		360		320	499	

NOTE—Discharge Dec. 6-10, 17-20 and Dec. 27 to Feb. 16 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Lackawanna River near West Hawley, McMichaels Creek near Stroudsburg, Tunkhannock Creek at Dixon and Lackawanna River at Moosic.

Monthly discharge of Bushkill Creek near Shoemakers for the year ending Sept. 30, 1927.

(Drainage area 115 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	687	65	208	1.81	2.09
November	1,420	206	503	4.37	4.88
December	392	160	217	1.89	2.18
January	550	90	220	1.91	2.20
February	499	220	332	2.89	3.01
March	875	255	494	4.30	4.96
April	429	98	216	1.88	2.10
May	640	166	289	2.51	2.89
June	429	91	197	1.71	1.91
July	828	56	210	1.83	2.11
August	734	138	320	2.86	3.30
September	828	74	263	2.29	2.56
The Year	1,420	56	289	2.51	34.19



## DELAWARE BASIN—STATION NO. 6

## McMICHAELS CREEK NEAR STROUDSBURG

*Location.*—At single-span steel railroad bridge, Wilkes-Barre & Eastern R. R. car shops, about three-quarters of a mile southwest of Stroudsburg, Monroe County.

*Drainage Area.*—62 square miles.

*Records Available.*—August 10, 1911, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by H. Q. Snyder.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of silt and stones. Control for medium and low stages is at a gravel and boulder bar, where the stream has a pronounced fall, about 600 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.4 feet at 9 p. m. November 16 (discharge, about 2,000 second-feet); minimum, 2.82 feet at 4.15 p. m. September 30 (discharge, 34 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 25 and 300 second-feet and fairly well defined from 300 to 800 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they are fair.

*Discharge measurements of McMichaels Creek near Stroudsburg during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
50	Oct. 9	J. M. Snively	3.00	52.9
51	Sept. 27a	do	2.92	45.3
52	27a	do	2.92	43.9

a Measurement made by wading 200 feet upstream from gage.

*Daily Mean Gage Height, in feet, of McMichaels Creek near Stroudsburg for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.99	3.40	3.49	3.02	3.54	3.78	3.24	3.15	3.47	3.38	3.20	3.15
2	2.94	3.35	3.34	2.92	3.44	3.73	3.23	3.11	3.37	3.32	3.47	3.56
3	2.90	3.24	3.49	2.86	3.54	3.68	3.25	3.15	3.23	3.14	3.20	3.32
4	2.90	3.20	3.39	2.88	3.49	3.48	3.24	3.13	3.20	3.22	3.12	3.23
5	2.88	3.19	3.54	2.97	3.34	3.38	3.23	3.13	3.22	3.16	3.09	3.19
6	3.00	3.12	3.44		3.34	3.53	3.29	3.00	3.22	3.17	3.06	3.15
7	3.05	3.13	3.44		3.25	3.38	3.20	2.91	3.19	3.20	3.10	3.12
8	3.01	3.13	3.44		3.22	3.73	3.13	2.91	3.15	3.10	3.07	3.08
9	3.04	3.26	3.25		3.23	3.78	3.09	3.08	3.11	3.08	3.03	3.08
10		3.50	3.30		3.21	3.73	3.07	3.09	3.06	3.08	3.01	3.05
11	3.07	3.30	3.25		3.21	3.68	3.03	3.15	3.12	3.05	2.97	3.01
12	3.01	3.24	3.22	2.86	3.19	3.63	3.00	3.06	3.16	3.03	2.99	2.96
13	2.96	3.23	3.16	2.89	3.22	3.63	3.03	3.05	3.07	3.01	2.95	2.95
14	2.92	3.23	3.13	2.98	3.18	3.93	2.98	3.07	3.12	3.00	3.00	2.95
15	2.91	3.45	3.17	3.00	3.16	3.78	2.97	3.12	3.15	3.08	3.36	2.94
16	2.89	5.50	3.18		3.14	3.78	3.00	3.17	3.04	3.02	3.19	2.94
17	2.90	5.62	3.18	3.00	3.12	3.68	3.03	3.05	3.00	3.08	3.07	2.91
18	2.98	4.45	3.18	2.96	3.78	3.58	3.02	3.04	3.00	3.14	3.06	2.97
19	2.96	4.68	3.16	3.28	3.63	3.48	2.97	3.06	3.40	3.09	3.00	3.07
20	3.04	4.55	3.16	3.04		3.43	2.92	3.20	3.42	3.03	2.98	2.98
21	3.22	4.44	3.16	3.74	3.38	3.98	2.89	3.11	3.92	2.98	2.97	2.92
22	3.10	3.99	3.15	3.64	3.33	3.78	3.38	3.08	3.62	2.99	2.96	2.86
23	3.02	3.89	3.17	3.64	3.29	3.73	3.23	3.08	3.92	4.08	2.92	2.85
24		3.79	3.17	3.35	3.58	3.68	3.19	4.07	3.58	3.43	2.90	2.85
25		3.84	3.24	3.15	3.58	3.58	3.13	4.37	3.42	3.21	2.88	2.83
26		3.64	2.96	3.14	4.58	3.58	3.15	4.07	3.82	3.15	2.88	2.87
27		3.69	3.14	3.11	4.08	3.53	3.21	3.97	3.57	3.14	3.58	2.90
28	3.70	3.54	3.25	3.11	3.78	3.48	3.38	3.67	3.52	3.17	4.01	2.91
29	3.55	3.44	3.20	3.34		3.38	3.24	3.52	3.38	3.17	3.36	2.87
30	3.50	3.69	3.01	3.26		3.38	3.21	3.42	3.37	3.02	3.22	2.83
31	3.45		3.05	3.23		3.29		3.47		3.12	3.16	

NOTE—Gage height Oct. 10, 24-27, Jan. 16 and Feb. 20 not observed and Jan. 6 and 7 unsatisfactory. Stage-discharge relation Dec. 5-11, 17-23, Jan. 8-11 and 13-20 affected by ice.

*Daily discharge, in second-feet, of McMichaels Creek near Stroudsburg for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	119	137	55	150	211	89	74	133	115	82	74
2	46	110	108	44	127	198	87	68	113	104	133	150
3	42	89	137	38	150	185	91	74	87	72	82	104
4	42	82	117	40	137	135	89	71	82	86	69	87
5	40	80	75	50	108	115	87	71	86	76	65	80
6	53	69	55	48	108	150	98	53	86	77	61	74
7	60	71	55	44	91	115	82	43	80	82	66	69
8	54	71	55	42	86	198	71	43	74	66	62	63
9	58	93	65	42	87	211	65	63	68	63	57	63
10	80	139	75	42	84	198	62	65	61	63	54	60
11	62	100	80	42	84	185	57	74	69	60	50	54
12	54	89	86	38	80	173	53	61	76	57	52	49
13	49	87	76	38	86	173	57	60	62	54	48	48
14	44	87	71	34	79	256	51	62	69	53	53	48
15	43	129	77	32	76	211	50	69	74	63	111	46
16	41	902	79	32	72	211	53	77	58	55	80	46
17	42	952	65	32	69	185	57	60	53	63	62	43
18	51	438	55	32	211	161	55	58	53	72	61	50
19	49	538	55	34	173	135	50	61	119	65	53	62
20	58	497	55	48	140	125	44	82	123	57	51	51
21	86	438	55	198	115	272	41	68	240	51	50	44
22	66	272	55	173	106	211	115	63	161	52	49	38
23	55	240	60	173	98	198	87	63	240	307	44	37
24	65	211	77	110	161	185	80	290	161	125	42	37
25	280	226	89	74	161	161	71	399	123	84	40	35
26	320	173	49	72	497	161	74	290	211	74	40	39
27	260	185	72	68	307	150	84	256	150	72	161	42
28	185	150	91	68	211	135	115	173	139	77	272	43
29	150	127	82	108		115	89	139	115	77	111	39
30	139	185	54	93		115	84	123	113	55	86	35
31	129		60	87		98		133		69	76	

NOTE—Discharge estimated Oct. 10, 24-27 and Feb. 20, because of no gage height record, from weather records, study of gage height graphs and comparison with discharge at other stations; Dec. 5-11, 17-23, Jan. 8-11 and 13-20, because of ice, and Jan. 6 and 7, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with similar studies for Lackawaxen River near West Hawley, Bushkill Creek near Shoemakers and Lackawanna River at Moosic.



Monthly discharge of McMichael's Creek near Stroudsburg for the year ending Sept. 30, 1927.

(Drainage area 62 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	320	40	88.9	1.43	1.65
November	952	69	232	3.74	4.17
December	137	49	74.9	1.21	1.40
January	198	32	65.5	1.06	1.22
February	497	69	138	2.23	2.32
March	272	98	172	2.77	3.19
April	115	41	72.9	1.18	1.32
May	399	43	106	1.71	1.97
June	240	53	109	1.76	1.96
July	307	51	78.9	1.27	1.46
August	272	40	74.9	1.21	1.40
September	150	35	57.0	.919	1.03
The Year	952	32	105	1.69	23.09

DELAWARE BASIN—STATION NO. 7

### DELAWARE RIVER AT BELVIDERE, N. J.

*Location.*—At Belvidere, Warren County, just below mouth of Pequest River.

*Drainage Area.*—4,540 square miles.

*Records Available.*—October 27, 1922, to September 30, 1927.

*Equipment.*—Inclined staff gage on left bank bolted to downstream side of storm sewer outlet at foot of Second Street, Belvidere.

Discharge measurements made by boat 1,000 feet below gage for low water and from highway bridge  $\frac{1}{2}$  mile upstream during high water. Pequest River measured separately when highway bridge is used.

*Channel and Control.*—Channel is heavy gravel and boulders. Control is ledge and boulders about  $\frac{3}{4}$  mile below gage, known as Little Foul Rift.

*Extremes of Discharge.*—Maximum stage during year determined from hydrograph, 18.5 feet at 9 p. m. November 17 (discharge, about 108,000 second-feet); minimum stage recorded, 3.29 feet at 6 p. m. July 12 (discharge, 1,850 second-feet).

1922-1927: Maximum stage determined by levels from high water mark, 19.3 feet at 2 p. m. October 1, 1924 (discharge, about 118,000

second-feet); minimum stage recorded, 2.45 feet in July and August 1923 (discharge, 895 second-feet).

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 900 and 60,000 second-feet, checked by discharge measurement of 5,400 second-feet on July 26. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean daily gage height to rating table, except for periods of ice effect as indicated in footnote to daily discharge. Results good.

*Cooperation.*—Record furnished by United States Geological Survey Office, Trenton, New Jersey.

Discharge measurements of Delaware River at Belvidere, N. J., during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
18	July 26	W. R. Voght	4.87	5,400

Daily discharge, in second-feet, of Delaware River at Belvidere, N. J., for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,830	9,050	11,400	4,580	14,100	13,700	10,600	9,430	10,600	3,600	4,580	14,600
2	3,370	10,200	11,400	4,580	13,200	12,300	10,200	7,960	10,600	3,370	6,620	24,400
3	2,940	9,430	9,430	4,070	12,300	10,200	9,050	7,960	9,050	3,150	7,960	36,300
4	2,740	8,680	8,680	4,320	11,900	9,430	8,320	7,610	7,610	2,940	6,300	22,700
5	2,270	7,500	7,500	5,120	11,400	8,680	9,050	7,270	7,610	2,550	5,120	16,400
6	3,370	7,270	5,400	4,850	9,500	7,960	9,430	7,270	8,320	2,360	4,580	13,200
7	7,960	6,300	4,850	4,400	9,050	8,320	9,430	6,620	7,610	2,360	3,600	10,600
8	11,900	5,990	6,300	3,800	8,320	9,430	10,600	5,690	6,940	2,360	3,370	8,680
9	8,320	5,690	6,940	3,600	7,960	16,900	9,810	5,120	5,990	2,360	4,000	7,610
10	6,300	10,600	6,940	3,400	7,610	22,700	8,320	6,940	5,400	2,180	4,000	6,620
11	5,400	18,900	7,270	3,400	7,610	19,400	7,270	11,900	5,120	2,180	3,830	5,990
12	5,120	15,000	7,500	4,000	6,940	22,100	7,610	14,600	4,850	1,930	3,370	5,990
13	5,400	11,900	6,620	4,580	6,620	25,600	7,610	12,300	4,320	1,930	3,150	5,990
14	5,120	10,000	6,940	4,320	5,990	39,900	6,940	9,810	4,320	1,850	4,580	5,690
15	5,120	9,050	6,620	4,000	5,990	58,800	6,300	9,430	4,320	2,550	8,320	5,400
16	5,120	17,900	5,690	3,600	5,990	50,000	5,690	11,400	4,070	2,270	9,430	4,850
17	4,580	72,000	5,690	3,400	6,620	34,900	5,400	11,900	3,830	3,150	6,940	4,320
18	4,070	65,300	4,850	3,600	8,320	29,400	5,400	10,200	3,600	2,550	5,990	4,070
19	4,850	37,700	4,580	4,320	11,000	29,400	5,690	9,810	3,370	2,270	5,690	3,830
20	5,990	31,500	4,320	4,850	10,000	31,500	5,990	9,810	6,300	2,010	5,120	4,320
21	6,300	24,000	4,320	5,690	9,430	28,800	5,690	9,430	6,300	2,010	5,990	4,580
22	7,270	18,900	5,120	7,270	9,810	40,600	6,620	7,960	5,120	2,010	4,070	4,070
23	7,270	16,400	5,120	18,000	10,200	31,500	8,680	6,620	4,580	3,600	3,830	3,370
24	7,000	14,600	5,400	26,000	10,600	23,800	10,600	9,430	4,070	5,990	3,830	3,150
25	10,200	12,800	5,120	19,000	13,200	19,400	8,320	29,400	3,830	6,940	3,600	3,370
26	17,400	10,600	4,850	14,000	17,400	16,900	8,320	36,300	4,070	5,120	3,150	2,940
27	16,900	12,300	4,320	9,000	18,400	15,000	7,960	30,800	5,400	4,320	4,580	2,550
28	13,700	15,000	4,070	7,500	15,500	13,200	11,000	23,800	6,620	4,320	8,320	2,550
29	11,900	12,300	5,120	9,000	-----	13,200	12,800	18,900	4,850	3,600	13,200	2,460
30	9,810	11,000	4,850	10,600	-----	12,300	11,000	14,100	3,830	3,370	22,100	2,550
31	9,000	-----	4,580	11,000	-----	11,400	-----	12,300	-----	3,600	17,900	-----

NOTE—Discharge Jan. 7-12, 15-17 and 23, when stage-discharge relation was affected by ice, and Oct. 24, 31, Nov. 5, 14, 21, 23, Dec. 5, 12, Jan. 24-29, Feb. 6, 20, July 31, Aug. 9 and 10, when gage heights are missing, determined by graphic study of gage heights, weather records and comparison with records of gage heights at Riegelsville and Trenton.



Monthly discharge of Delaware River at Belvidere, N. J., for the year ending Sept. 30, 1927.

(Drainage area 4,540 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	17,400	2,270	7,110	1.57	1.81
November	72,000	5,690	17,300	3.81	4.25
December	11,400	4,070	6,190	1.36	1.57
January	26,000	3,400	7,090	1.56	1.80
February	18,400	5,990	10,200	2.25	2.34
March	58,800	7,960	22,200	4.89	5.64
April	12,800	5,400	8,320	1.83	2.04
May	36,300	5,120	12,300	2.71	3.12
June	10,600	3,370	5,750	1.27	1.42
July	6,940	1,850	3,060	.674	.78
August	22,100	3,150	6,360	1.40	1.61
September	36,300	2,460	8,100	1.78	1.99
The Year	72,000	1,850	9,480	2.09	23.37

DELAWARE BASIN—STATION NO. 8

### LEHIGH RIVER AT TANNERY

*Location.*—At single-span steel highway bridge, Tannery, Carbon County.

*Drainage Area.*—335 square miles.

*Records Available.*—June 23, 1914, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by G. D. Heimbach. Elevation of gage zero 1,029.41 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and large stones. Control is at a riffle about 300 feet downstream from the gage; probably permanent.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 15.0 feet at 8 p. m. November 16; minimum, 1.68 feet at 8 a. m. September 18.

*Ice.*—Stage-discharge relation usually affected by ice.

Discharge measurements of Lehigh River at Tannery during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
30	Oct. 6	Geo. Weber	4.34	1,010
31	6	J. M. Snavely	4.44	1,100
32	Sept. 30	do	1.74	236
33	30	do	1.74	232

Daily Mean Gage Height, in feet, of Lehigh River at Tannery for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.72	4.78	3.94	2.05	3.14	3.00	3.52	3.80	3.46	2.69°	2.18	2.14
2	3.55	4.65	3.74	1.90	3.12	2.65	3.58°	3.65	3.36	2.51	2.97°	2.88
3	3.38	4.49	3.69	2.18°	3.12	2.62	3.46	3.45	2.95	2.38	2.70	3.00°
4	3.34	4.38	3.45	2.10	3.15°	2.62	3.35	3.34	2.75	2.28	2.18	2.51
5	3.28	4.15	2.98	2.00	3.04	2.82	3.25	3.02	3.52°	2.14	1.95	2.08
6	4.32	4.02	2.78	1.93	2.88	2.86°	3.28°	2.72	3.32	2.02	1.88	1.97
7	4.56°	4.02	2.98	2.02	2.78	2.76	3.17	2.62	2.95	2.15	1.86	1.94
8	4.38	3.96	3.32°	2.43	2.75	3.70	3.02	2.55	2.75	2.50°	1.89°	1.90
9	4.25	4.10	3.29	2.68	2.72	4.20	2.96	2.54	2.65	2.34	1.86	1.89
10	4.12	5.14°	3.25	2.68	2.71	4.38	2.75	2.61	2.55	1.99	1.84	1.87
11	4.28°	4.92	2.92	2.95	2.68	4.51	2.70	3.54°	2.95	1.93	1.81	1.90°
12	4.19	4.68	2.79	3.42	2.56	4.60	2.76°	3.48	2.75	1.90	1.83°	1.89
13	4.12	4.50	2.82	3.49	2.44	5.12	2.72	3.15	2.50	1.88	1.82	1.87
14	4.02	4.38	2.91°	3.58°	2.37	5.95	2.71	2.92	2.39	1.87	2.11	1.84
15	3.96	4.34	2.75	3.31	2.39	5.99°	2.55	3.62	2.60°	1.88	3.05°	1.79
16	3.75	10.32	2.65	3.12	2.40°	5.37	2.42	3.65°	2.36	1.88	2.60	1.78
17	3.69	10.98°	2.35	3.41°	2.38	4.65	2.49°	3.38	2.15	2.13°	2.18	1.72
18	3.72	7.22	2.17	3.35	3.15	4.46	2.37	3.36	1.98	2.02	2.07	1.69
19	3.72	6.95	2.16	3.15	3.21°	4.54	2.78°	3.42	2.19	1.93	2.07	1.91
20	3.72	6.16	2.95°	3.50	3.05	4.61	2.65	3.65°	3.30°	1.89	1.95	2.03°
21	4.10°	4.90	2.90	3.95	2.96	5.15°	2.58	3.45	2.95	1.82	1.91	1.97
22	3.98	4.60	2.50	4.40	2.88	4.85	3.68	3.32	2.61	1.72	1.89	1.92
23	3.92	4.45	2.37	5.40°	2.91	4.48	3.85°	3.50	2.50	3.62	1.87	1.91
24	3.91	4.32	2.31	5.28	3.10	4.49°	3.72	4.50	2.46	3.80°	1.88°	1.90
25	5.05	3.99	2.28	5.30°	3.78	4.22	3.65	4.64	2.44	3.30	1.85	1.84
26	5.00°	3.98	2.18	4.52	4.01°	3.99	3.75	4.69°	3.85°	2.70	1.84	1.81
27	4.88	4.40°	2.08	4.05	3.92	3.85	4.28	4.62	3.85	2.25	1.84	1.80
28	4.81	4.38	2.26	4.82°	3.55	3.74	4.45°	4.35	3.55	2.02	2.08	1.88°
29	4.62	4.30	2.35°	4.35	-----	3.68	4.32	4.08	3.05	2.05°	2.72°	1.81
30	4.59	4.16	2.20	3.95	-----	3.62	3.98	3.88	2.65	1.95	2.58	1.76
31	4.80°	-----	2.05	3.85	-----	3.72°	-----	3.65	-----	2.01	2.35	-----

NOTE—Stage-discharge relation Dec. 7-10 and Jan. 7-31 affected by ice.

DELAWARE BASIN—STATION NO. 9

### LITTLE LEHIGH CREEK AT ALLENTOWN

*Location.*—At four-span stone arch highway bridge, Lehigh Street, Allentown, Lehigh County, about 2,500 feet upstream from the confluence of Little Lehigh and Jordan Creeks.

*Drainage Area.*—106 square miles.



*Records Available.*—April 29, 1921, to September 30, 1927.

*Gage.*—Staff attached to downstream end of left pier; read to hundredths twice daily by Nelson Schantz; during high stages more frequently.

*Discharge Measurements.*—Made from downstream side of trolley bridge, which is just downstream from the gage, or by wading.

*Channel and Control.*—Channel is confined by retaining walls and brick buildings. Bed is composed of small gravel. Control is at a riffle a short distance downstream from gage, where the bed is composed of sand and gravel deposited July 20, 1921; shifts occasionally.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 8.0 feet at 4 a. m. November 17; minimum, 1.00 foot at 9 a. m. October 15 and 16 and all day October 17.

*Ice.*—Stage-discharge relation not affected by ice since the establishment of station.

*Cooperation.*—Station is maintained in cooperation with the American Steel and Wire Company, Allentown, Pennsylvania.

*Discharge measurements of Little Lehigh Creek at Allentown during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
17	May 19	J. M. Snavely	1.28	118
18	19	do	1.28	122

NOTE—Measurements made by waiting at gage.

*Daily Mean Gage Height, in feet, of Little Lehigh Creek at Allentown for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.10	1.25	1.42	1.30	1.42	1.50	1.30	1.20	1.20	1.22	1.57	1.20
2	1.09	1.20	1.32	1.22	1.40	1.45	1.34	1.22	1.18	1.20	2.05	1.18
3	1.06	1.15	1.28	1.30	1.38	1.35	1.30	1.20	1.18	1.18	1.28	1.15
4	1.09	1.10	1.31	1.32	1.40	1.35	1.34	1.20	1.18	1.20	1.18	1.12
5	1.08	1.10	1.28	1.45	1.38	1.38	1.30	1.22	1.40	1.18	1.18	1.15
6	1.21	1.14	1.30	1.28	1.38	1.38	1.30	1.22	1.26	1.20	1.15	1.18
7	1.10	1.10	1.28	1.25	1.39	1.46	1.30	1.22	1.20	1.20	1.18	1.15
8	1.10	1.16	1.28	1.22	1.35	1.58	1.30	1.18	1.18	1.18	1.24	1.15
9	1.10	1.15	1.28	1.20	1.35	1.58	1.33	1.20	1.18	1.18	1.22	1.15
10	1.06	1.32	1.28	1.26	1.35	1.45	1.28	1.22	1.18	1.18	1.18	1.15
11	1.09	1.10	1.28	1.18	1.35	1.40	1.34	1.32	1.18	1.20	1.15	1.08
12	1.07	1.15	1.25	1.18	1.32	1.40	1.28	1.25	1.18	1.20	1.18	1.19
13	1.10	1.12	1.30	1.15	1.30	1.42	1.28	1.20	1.20	1.18	1.15	1.12
14	1.08	1.10	1.36	1.68	1.35	1.48	1.25	1.18	1.22	1.18	1.20	1.12
15	1.02	1.16	1.32	1.49	1.45	1.52	1.22	1.42	1.25	1.20	1.24	1.15
16	1.05	3.27	1.25	1.18	1.62	1.40	1.25	1.28	1.15	1.18	1.20	1.12
17	1.00	5.98	1.25	1.25	1.42	1.40	1.25	1.20	1.12	1.15	1.18	1.12
18	1.09	2.80	1.27	1.25	2.08	1.35	1.28	1.18	1.12	1.20	1.20	1.10
19	1.07	2.80	1.20	1.28	1.62	1.38	1.18	1.22	1.39	1.12	1.18	1.20
20	1.15	1.84	1.26	2.07	1.32	1.42	1.22	1.22	2.75	1.10	1.18	1.15
21	1.18	1.45	1.25	3.33	1.35	1.60	1.18	1.22	1.60	1.10	1.12	1.15
22	1.08	1.44	1.25	2.46	1.38	1.48	1.58	1.18	1.30	1.08	1.19	1.15
23	1.07	1.38	1.25	2.02	1.38	1.40	1.42	1.20	1.28	1.37	1.18	1.15
24	1.19	1.42	1.25	1.54	1.52	1.40	1.22	1.38	1.25	1.26	1.12	1.15
25	2.64	1.32	1.48	1.51	1.75	1.35	1.26	2.42	1.21	1.15	1.15	1.10
26	1.49	1.35	2.45	1.38	2.50	1.40	1.20	1.48	1.15	1.10	1.12	1.15
27	1.22	1.83	1.47	1.22	1.89	1.35	1.25	1.38	1.20	1.08	1.30	1.08
28	1.20	1.40	1.42	1.28	1.62	1.38	1.42	1.28	1.18	1.10	1.20	1.12
29	1.18	1.40	1.70	2.04	-----	1.32	1.22	1.20	1.18	1.08	1.36	1.10
30	1.19	1.48	1.40	1.95	-----	1.28	1.24	1.20	1.18	1.08	1.28	1.10
31	1.18	-----	1.32	1.70	-----	1.32	-----	1.22	-----	1.12	1.20	-----

DELAWARE BASIN—STATION NO. 10

## LEHIGH RIVER AT BETHLEHEM

*Location.*—At nine-span steel highway bridge, three spans over the normal river channel, New Street, Bethlehem, Northampton County, about 800 feet upstream from the mouth of Monocacy Creek.

*Drainage Area.*—1,240 square miles.

*Records Available.*—September 22, 1902, to February 13, 1905, and April 26, 1909, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Thomas A. Roach. Elevation of gage zero 210.64 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Right bank is high and not subject to overflow; left is low and subject to overflow at high stages. Bed is composed of sand and gravel. Control is at a riffle about 1,000 feet downstream from the gage; shifts occasionally. Monocacy Creek enters from left just downstream from the low-water control.



**Extremes of Discharge.**—Maximum stage during the year, estimated from hydrograph, 16.5 feet at 1 a. m. November 17 (discharge, about 44,000 second-feet); minimum, 1.60 feet on September 18 and at 8.45 a. m. September 30 (discharge 425 second-feet).

**Ice.**—Stage-discharge relation seldom affected by ice.

**Diversions.**—During navigation season water is diverted past the gage through the Lehigh Coal and Navigation Company Canal, which follows the left bank and passes under the left span of bridge.

**Accuracy.**—Stage-discharge relation permanent. Rating curve well defined below 1,800 second-feet and fairly well defined between 1,800 and 31,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good for medium and high stages; only fair for low stages owing to uncertain amount of water diverted by canal.

*Discharge measurements of Lehigh River at Bethlehem during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
73	Oct. 18	J. M. Snively	2.57	1,400
74	May 19	Geo. Weber	2.88	2,050

*Daily Mean Gage Height, in feet, of Lehigh River at Bethlehem for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.51	3.86	3.93	2.46	3.37	3.80	3.18	3.42	3.33	3.20	2.82	2.38
2	2.34	3.61	3.70	2.41	3.20	3.63	3.09	3.27	3.12	3.08	3.00	2.34
3	2.20	3.43	3.44	2.34	3.08	3.52	3.22	3.11	2.94	2.93	3.21	2.21
4	2.24	3.22	3.30	2.34	3.54	3.42	3.06	3.07	2.88		2.79	2.15
5	2.22	3.10	3.31	2.39	3.14	3.14	2.95	2.94	3.25	2.49	2.49	2.14
6	3.17	3.12	3.04	2.52	2.97	3.07	2.97	3.21	2.38	2.34	2.06	
7	3.56	3.02	3.04	2.48	2.90	3.32	2.85	2.74	2.91	2.36	2.44	2.01
8	3.16	2.86	2.92	1.92	2.79	3.73	2.84	2.60	2.75	2.24	2.57	2.01
9	2.90	3.07	2.88	1.88	2.82	3.23	2.75	2.51	2.59	2.42	2.53	1.80
10	2.82	4.05	3.00	1.96	2.78	4.07	2.65	2.65	2.48	2.29	2.27	1.82
11	2.93	3.75	2.94	2.00	2.85	4.00	2.57	3.27	2.60	2.23	2.09	1.84
12	2.80	3.51	2.85	1.91	2.67	4.16	2.59	2.92	2.42	2.12	1.97	1.86
13	2.67	3.34	2.81	1.96	2.59	4.25	2.65	2.74	2.19	2.05	2.02	1.90
14	2.71	3.22	2.88	2.43	2.69	4.76	2.61	2.59	2.26	1.89	2.50	1.84
15	2.58	3.23	2.72	2.30	2.66	5.67	2.47	2.67	2.78	2.02	3.74	1.77
16	2.43	7.60	2.62	1.82	2.98	4.93	2.35	2.94	2.49	2.04	3.09	1.64
17	2.40	12.92	2.18	1.90	2.80	4.55	2.40	2.87	2.27	3.05	2.72	1.67
18	2.51	8.14	2.15	1.98	3.77	4.27	2.33	2.72	2.17	2.92	2.60	1.60
19	2.73	8.03	2.08	2.14	3.83	4.14	2.25	2.79	3.23	2.42	2.49	1.97
20	2.73	7.00	2.32	2.87	3.55	4.06	2.34	3.32	5.93	2.21	2.38	1.85
21	3.36	6.10	2.49	4.99	3.34	4.76	2.29	3.24	4.43	2.05	2.29	1.80
22	3.07	5.31	2.56	4.22	3.15	5.22	2.99	3.05	3.73	2.08	2.16	1.74
23	2.78	4.78	2.48	4.00	3.06	4.67	3.71	2.90	3.68	3.74	2.20	1.70
24	2.77	4.45	2.43	3.96	3.49	4.32	3.38	3.58	3.60	3.81	2.20	1.69
25	5.57	4.16	2.48	3.65	3.57	4.07	3.20	4.57	3.27	3.22	2.17	1.69
26	5.32	4.08	2.54	3.37	5.57	3.91	3.09	4.85	3.95	2.78	2.40	1.69
27	4.57	5.17	2.44	2.48	4.63	3.73	3.43	4.75	3.84	2.24	2.59	1.68
28	4.23	4.64	2.69	2.62	4.11	3.67	4.20	4.26	3.41	2.71	3.15	1.67
29	3.91	4.19	2.94	3.38		3.46	3.91	3.79	3.17	2.37	2.90	1.64
30	3.60	4.13	2.73	3.69		3.31	3.66	3.52	3.08	2.13	2.65	1.61
31	3.62		2.52	3.54		3.36		3.42		2.27	2.41	

NOTE—Gage height July 4 not observed.

*Daily discharge, in second-feet, of Lehigh River at Bethlehem for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,310	3,430	3,430	1,250	2,560	3,250	2,250	2,560	2,400	2,250	1,700	1,190
2	1,130	2,960	3,070	1,190	2,250	2,900	2,110	2,400	2,110	2,110	3,430	1,130
3	965	2,560	2,560	1,130	2,110	2,730	2,250	2,110	1,900	1,900	2,250	965
4	1,020	2,250	2,400	1,130	2,730	2,560	2,110	2,110	1,830	1,600	1,700	908
5	965	2,110	2,400	1,190	2,110	2,110	1,900	1,900	2,250	1,310	1,310	908
6	2,250	2,110	1,970	1,310	1,900	2,110	1,900	1,760	2,250	1,190	1,130	890
7	2,900	1,970	1,970	1,310	1,830	2,400	1,760	1,640	1,830	1,130	1,250	750
8	2,250	1,760	1,830	650	1,700	3,070	1,760	1,440	1,640	1,020	1,380	750
9	1,830	2,110	1,830	650	1,700	2,250	1,640	1,310	1,440	1,190	1,380	590
10	1,700	3,610	1,970	700	1,700	3,800	1,500	1,500	1,310	1,070	1,020	560
11	1,900	3,250	1,900	750	1,760	3,610	1,380	2,400	1,440	1,020	850	605
12	1,700	2,730	1,760	650	1,500	4,000	1,440	1,830	1,190	850	700	605
13	1,500	2,400	1,700	700	1,440	4,000	1,500	1,640	965	800	750	650
14	1,570	2,250	1,830	1,250	1,570	5,270	1,440	1,440	1,020	650	1,310	605
15	1,440	2,250	1,570	1,070	1,500	7,470	1,250	1,500	1,700	750	3,070	522
16	1,250	12,800	1,440	560	1,970	5,500	1,130	1,900	1,310	800	2,110	455
17	1,190	28,800	965	650	1,700	4,830	1,190	1,760	1,020	1,970	1,570	455
18	1,310	14,200	908	750	3,250	4,200	1,130	1,570	908	1,830	1,440	425
19	1,640	13,900	850	908	3,250	3,800	1,020	1,700	2,250	1,190	1,310	700
20	1,640	11,100	1,070	1,760	2,900	3,800	1,130	2,400	8,000	965	1,190	605
21	2,560	8,550	1,310	5,730	2,400	5,270	1,070	2,250	4,410	800	1,070	560
22	2,110	6,450	1,380	4,000	2,250	6,210	1,970	1,970	3,070	850	908	522
23	1,700	5,270	1,310	3,610	2,110	5,050	3,070	1,830	3,070	3,070	965	485
24	1,640	4,410	1,250	3,610	2,730	4,200	2,560	2,900	3,250	2,900	965	485
25	7,210	4,000	1,310	2,900	2,900	3,800	2,250	4,830	2,400	2,250	908	485
26	6,450	3,800	1,380	2,560	7,210	3,430	2,110	5,270	3,610	1,700	1,190	485
27	4,830	6,210	1,250	1,310	4,830	3,070	2,560	5,270	3,250	1,020	1,440	485
28	4,000	4,830	1,570	1,440	3,800	3,070	4,000	4,200	2,560	1,570	2,250	475
29	3,430	4,000	1,900	2,560		2,730	3,430	3,430	3,250	2,250	1,130	455
30	2,900	3,800	1,640	3,070		2,400	3,070	2,730	2,110	908	1,500	425
31	2,900		1,310	2,730		2,560		2,560		1,020	1,190	

NOTE—Discharge does not include the water diverted past the gage through the Lehigh Coal and Navigation Company Canal. Canal was closed Nov. 27 to Mar. 27. Discharge July 4 estimated, because of no gage height record.

*Monthly discharge of Lehigh River at Bethlehem for the year ending Sept. 30, 1927.*  
(Drainage area 1,240 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	7,210	965	2,300	1.85	2.13
November	28,800	1,760	5,660	4.56	5.09
December	3,430	850	1,710	1.38	1.59
January	5,730	560	1,710	1.38	1.59
February	7,210	1,440	2,490	2.01	2.09
March	7,470	2,110	3,720	3.00	3.46
April	4,000	1,020	1,930	1.56	1.74
May	5,270	1,310	2,380	1.92	2.21
June	8,000	908	2,280	1.84	2.05
July	3,250	650	1,390	1.12	1.29
August	3,430	700	1,450	1.17	1.35
September	1,190	425	633	.510	.57
The Year	28,800	425	2,300	1.85	25.16

NOTE—Discharge and run-off does not include the water diverted past the gage through the Lehigh Coal and Navigation Company Canal. Canal was closed Nov. 27 to Mar. 27.



## DELAWARE BASIN—STATION NO. 11

## DELAWARE RIVER AT RIEGELSVILLE

*Location.*—At suspension bridge between Riegelsville, Warren County, N. J., and Riegelsville, Bucks County, Pa., 600 feet above mouth of Musconetcong River and 9 miles below Lehigh River.

*Drainage Area.*—6,190 square miles.

*Records Available.*—July 3, 1906, to September 30, 1927.

*Equipment.*—Water-stage recorder on left bank (New Jersey side) 20 feet above bridge.

Discharge measurements made from bridge.

*Channel and Control.*—Control, rock outcrop and large boulders; practically permanent.

*Extremes of Discharge.*—Maximum stage during year from water-stage recorder, 22.6 feet at 10 p. m. November 17 (discharge, 118,000 second-feet); minimum stage, 2.83 feet 5 to 7 p. m. July 14 (discharge, 2,960 second-feet). Not including flow in canal.

1906-1927: Maximum stage recorded, 25 feet March 28, 1913 (discharge, about 144,000 second-feet); minimum stage recorded, 1.55 feet at 8 a. m. September 20, 1908 (discharge, 870 second-feet). Not including flow in canal.

The flood of October 10-11, 1903, reached a stage of 35.9 feet, determined by levels from three good flood marks. Maximum discharge during this flood has been estimated 275,000 second-feet at Riegelsville from observations made at Lambertville.

*Diversions and Regulation.*—The Delaware Division of the Pennsylvania Canal diverts about 230 second-feet from Lehigh River near its mouth from about the last of March to the middle of December each year. Daily distribution of flow affected slightly by water powers upstream.

*Accuracy.*—Stage-discharge relation permanent, not affected by ice this year. Rating curve well defined between 1,000 and 100,000 second-feet, checked by discharge measurement of 11,100 second-feet on July 25. Operation of recorder satisfactory. Daily discharge ascertained by applying to rating table mean daily gage height as found by inspecting graph, using a triangle to balance the areas above and below the mean height; or, for days of considerable fluctuation, by averaging the results obtained by applying the gage heights for hourly or other regular intervals to the rating table. Records good.

*Cooperation.*—Record furnished by United States Geological Survey Office, Trenton, New Jersey.

*Discharge measurements of Delaware River at Riegelsville during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
50	July 25	W. R. Voght	5.44	11,100

*Discharge measurements of Pennsylvania Canal at Riegelsville during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
	Oct. 12	H. C. Barksdale		234
	12	do		244
	12	do		224
	Apr. 21	Otto Lauterhahn		241
	July 25	W. R. Voght		238

*Daily discharge, in second-feet, of Delaware River at Riegelsville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,490	12,900	15,300	6,950	17,300	18,100	13,300	12,500	14,100	6,360	6,650	16,500
2	4,930	13,300	14,900	6,360	16,900	16,100	12,900	10,800	13,300	5,780	10,000	23,400
3	4,390	12,500	12,900	6,070	16,100	13,700	12,500	10,400	11,800	5,210	10,400	37,800
4	4,120	11,400	11,100	6,360	15,300	12,500	11,400	10,000	10,400	4,660	8,480	28,400
5	3,590	10,400	9,720	7,260	14,500	11,800	11,400	9,720	10,400	4,390	7,260	19,900
6	4,660	9,410	7,860	6,950	12,200	11,100	11,800	9,410	10,800	4,120	6,070	15,000
7	8,920	8,790	7,260	6,360	11,400	11,400	11,800	8,790	10,000	3,850	5,490	12,000
8	14,100	8,170	8,480	5,490	11,100	12,900	12,500	7,860	9,100	4,120	5,490	11,070
9	10,400	8,480	9,410	5,210	10,800	19,400	12,200	7,260	7,860	3,850	5,780	9,500
10	8,480	13,700	9,720	4,930	10,400	27,900	10,800	8,480	7,260	3,850	5,490	8,170
11	7,260	21,200	9,720	4,390	9,500	24,500	9,410	13,300	6,950	3,590	5,210	7,260
12	6,950	19,000	9,410	4,930	9,000	25,900	9,410	16,900	6,650	3,330	4,930	6,950
13	7,260	15,300	9,100	5,210	9,000	30,400	9,720	14,100	6,360	3,200	4,660	6,950
14	6,950	13,300	9,100	6,070	8,500	42,200	9,100	11,800	6,070	3,080	6,070	6,650
15	6,650	11,800	9,410	6,360	9,000	64,500	8,480	12,200	6,650	3,330	10,800	6,360
16	6,650	20,500	8,480	4,390	8,500	58,200	7,860	14,100	6,070	3,330	11,400	5,780
17	6,070	91,700	7,260	4,390	9,500	43,900	7,560	14,100	5,490	5,110	9,410	5,490
18	5,780	89,400	6,950	4,930	13,700	36,700	7,260	12,200	4,930	5,210	7,860	5,210
19	6,360	54,800	5,490	6,070	15,700	35,700	7,260	11,800	5,150	4,120	7,560	5,210
20	6,950	45,100	5,780	7,860	13,300	38,900	7,560	12,900	13,200	3,590	7,260	5,490
21	8,480	35,700	6,070	14,100	11,800	35,700	7,260	11,800	11,800	3,330	6,650	5,780
22	9,410	27,900	7,560	12,900	12,500	45,600	9,100	10,400	9,100	3,200	6,070	5,210
23	9,410	23,600	7,260	21,900	13,300	42,200	11,800	9,410	8,480	6,040	5,210	4,660
24	8,790	20,400	6,950	32,200	14,100	31,400	12,500	11,800	8,170	9,720	5,210	4,120
25	16,500	17,700	6,950	24,000	18,600	25,900	11,100	32,600	6,950	9,720	4,930	4,390
26	24,000	15,700	8,480	18,100	25,900	22,200	10,400	42,700	7,260	7,560	4,660	4,120
27	23,600	17,700	6,650	12,200	25,900	19,900	10,800	37,200	8,790	6,650	6,070	3,590
28	19,000	19,400	6,360	10,400	21,200	17,300	14,900	30,400	9,410	6,070	9,100	3,590
29	15,700	17,300	8,480	12,200	-----	16,500	16,100	24,000	7,860	5,490	13,900	3,330
30	13,700	15,300	7,860	14,500	-----	15,300	14,500	19,000	6,650	4,930	24,000	3,330
31	12,500	-----	7,260	15,700	-----	14,500	-----	16,100	-----	4,930	20,400	-----

NOTE—This table indicates river discharge; does not include diversion by Pennsylvania Canal which was open Oct. 1 to Nov. 27 and Mar. 28 to Sept. 30. Discharge Feb. 11-17 and Sept. 6-9, when recorder was not operating, determined from study of comparison with records of flow at Belvidere and Trenton.



Monthly discharge of Delaware River at Reigelsville for the year ending Sept. 30, 1927.

(Drainage area 6,190 square miles)

(Drainage area 3,661 sq. mi.)

Month	Discharge in Second-feet					Run-off in inches
	Actual Flow			Natural Flow		
	Maximum	Minimum	Mean	Mean	Per Sq. Mi.	
October -----	24,000	3,590	9,580	9,810	1.58	1.82
November -----	91,700	8,170	23,400	23,600	3.81	4.25
December -----	15,300	5,490	8,620	8,620	1.39	1.60
January -----	32,200	4,390	9,830	9,830	1.59	1.83
February -----	25,900	8,500	13,800	13,800	2.23	2.32
March -----	64,500	11,100	27,200	27,200	4.39	5.06
April -----	16,100	7,260	10,800	11,000	1.78	1.99
May -----	42,700	7,260	15,300	15,500	2.50	2.88
June -----	14,100	4,930	8,570	8,800	1.42	1.58
July -----	9,720	3,080	4,890	5,120	.827	.95
August -----	24,000	4,660	8,140	8,370	1.35	1.56
September -----	37,800	3,330	9,500	9,730	1.57	1.75
The Year -----	91,700	3,080	12,400	12,600	2.04	27.59

NOTE—"Natural Flow" is "Actual Flow" plus estimated 230 second-feet diverted down the Pennsylvania Canal. The Canal was closed Nov. 28 to March 27.

#### DELAWARE BASIN—STATION NO. 12

### DELAWARE RIVER AT TRENTON, N. J.

**Location.**—On the Calhoun Street Bridge, Trenton, Mercer County, 1 mile above Pennsylvania Railroad bridge, and half a mile above mouth of Assunpink Creek.

**Drainage Area.**—6,800 square miles.

**Records Available.**—February 24, 1913, to September 30, 1927.

**Equipment.**—Chain gage on downstream side of bridge about 100 feet from left abutment.

Discharge measurements made from upstream side of bridge.

**Channel and Control.**—Control, rocky and permanent at the rapids a few hundred feet below bridge.

**Extremes of Discharge.**—Maximum stage during year determined from hydrograph, 11.30 feet at 4 a. m. November 18 (discharge, 123,000 second-feet); minimum stage recorded, 0.40 foot at 8 a. m. July 15 (discharge, 2,860 second-feet). Not including flow in canals.

1913-1927; Maximum stage, 13.3 feet during night of March 28-29, 1913 (discharge, about 160,000 second-feet); minimum stage recorded, —0.40 foot several times in October and November 1914 (discharge, 1,240 second-feet). Not including flow in canals.

**Diversions and Regulation.**—The Delaware Division of the Pennsylvania canal diverts about 50 second-feet by the gaging station from about March 31 to December 15, each year. The Delaware and Raritan Canal feeder diverts about 130 second-feet from the first of March to the last of December each year. The Trenton Power canal diverts about 250 second-feet, daily.

**Accuracy.**—Stage-discharge relation permanent, except when affected by ice. Rating curve well defined between 1,200 and 125,000 second-feet, checked by three discharge measurements at high stages and one at a low stage. Gage read to hundredths once a day. Daily discharge ascertained by applying to rating table daily gage height corrected for ice effect when necessary. Records fairly good.

**Cooperation.**—Record furnished by the United States Geological Survey Office, Trenton, New Jersey.

Discharge measurements of Delaware River at Trenton, N. J., during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
24	Nov. 17	Otto Lauterhahn	9.05	86,500
25	18	do	10.62	110,000
26	18	E. W. Downs	9.92	98,500
27	July 28	Otto Lauterhahn	1.41	6,840

Measurements of discharge in canals which divert water around gaging station on Delaware River at Trenton, N. J., during the year ending Sept. 30, 1927.

Date	Delaware and Raritan Feeder Trenton	Power Canal Trenton	Pennsylvania Canal Morrisville, Pa.
	Sec.-ft.	Sec.-ft.	Sec.-ft.
Oct. 15	133	175	42
Dec. 1	70	245	15
Feb. 9	87	246	51
Apr. 6		213	
13		160	
19	133	207	
June 29	117	263	64
Sept. 29		316	23



Daily discharge, in second-feet, of Delaware River at Trenton, N. J., for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,400	14,400	17,300	7,600	18,900	19,700	14,400	14,400	15,800	6,200	5,400	19,700
2	5,000	14,400	16,500	7,100	20,500	17,300	13,700	12,300	13,700	6,200	9,750	18,900
3	4,600	14,400	15,100	6,650	18,100	15,100	13,700	11,000	13,000	5,800	11,000	35,400
4	4,220	12,300	12,300	6,200	15,800	13,000	12,300	11,000	11,600	5,000	10,400	33,400
5	3,860	11,600	12,300	5,800	15,800	13,000	11,600	11,000	11,000	4,600	8,600	22,900
6	3,860	11,000	8,500	6,650	14,400	11,600	12,300	10,400	11,600	4,220	7,100	17,300
7	5,880	10,400	8,000	6,650	13,000	11,600	12,300	9,750	11,000	3,860	6,200	14,400
8	15,800	9,150	8,500	6,000	11,600	11,600	12,300	9,150	9,750	3,860	5,400	11,600
9	13,000	8,600	11,000	6,000	11,000	15,800	13,000	8,100	9,150	3,860	8,100	9,750
10	10,400	16,500	11,000	5,500	11,000	27,400	12,300	7,100	8,100	4,220	6,650	9,150
11	8,600	17,300	10,400	4,600	10,400	24,700	10,400	11,000	7,100	3,520	5,800	9,750
12	7,100	22,100	9,750	5,500	10,400	23,800	9,150	18,900	7,100	3,520	5,400	7,100
13	7,600	17,300	9,750	6,000	9,750	27,400	10,400	15,800	6,650	3,180	5,000	7,100
14	7,600	15,100	9,150	7,000	8,600	37,600	9,750	13,700	6,200	3,180	5,400	7,100
15	7,100	13,700	11,000	7,500	8,100	61,000	9,150	12,300	6,200	2,860	7,600	7,100
16	6,650	23,800	9,750	5,500	11,600	62,300	8,600	13,700	6,650	3,520	12,300	6,200
17	7,100	33,300	8,600	4,600	9,750	48,100	8,100	14,400	5,800	3,520	11,600	5,800
18	6,200	103,000	7,500	5,500	13,000	37,600	7,600	13,700	5,400	6,200	9,150	5,400
19	5,800	61,000	6,500	7,000	16,500	33,400	7,100	12,300	5,400	5,000	8,600	5,400
20	5,800	48,100	6,500	11,000	17,300	37,600	7,600	12,300	6,650	3,860	7,600	5,000
21	8,600	38,700	7,000	16,000	14,400	34,400	8,100	13,000	14,400	3,180	7,600	5,400
22	9,750	30,400	8,500	14,000	13,700	39,800	9,750	11,600	11,000	3,180	6,200	5,400
23	10,400	24,700	8,500	18,100	13,700	45,700	12,300	10,400	9,150	6,200	5,800	4,600
24	9,750	21,800	8,500	43,300	15,100	33,400	13,700	9,150	8,600	11,000	5,400	4,600
25	15,800	18,900	8,000	28,400	18,900	26,500	13,000	20,500	8,100	9,750	5,000	4,220
26	22,900	17,300	10,000	22,100	26,500	22,900	11,000	44,500	7,100	9,150	4,600	4,220
27	24,700	15,800	8,000	16,000	27,400	19,700	11,000	42,100	8,600	7,600	7,100	3,860
28	21,300	18,900	7,500	13,000	23,800	18,100	13,700	33,400	10,400	6,650	9,750	3,180
29	17,300	19,700	11,600	15,000	-----	16,500	17,300	26,500	9,150	5,800	12,300	3,180
30	15,100	17,300	10,400	16,000	-----	16,500	16,500	19,700	7,600	5,000	21,300	3,180
31	14,400	-----	8,600	18,100	-----	15,100	-----	18,100	-----	5,000	24,700	-----

NOTE—This table indicates flow in river only. Discharge Dec. 6, 9, 25, 27, 28, Jan. 22, 27 and 30, when stage-discharge relation was affected by ice, and Dec. 7, 8, 18-24, 26, Jan. 8-21, 28 and 29, when gage was not read, determined by graphic study of gage heights, weather records and comparison with records of gage heights at Riegelsville and Belvidere.

Monthly discharge of Delaware River at Trenton, N. J., for the year ending Sept. 30, 1927.

(Drainage area 6,800 square miles)

Month	Discharge in Second-feet					Run-off in inches
	Actual Flow			Natural Flow		
	Maximum	Minimum	Mean	Mean	Per Sq. Mi.	
October -----	24,700	3,860	10,100	10,500	1.54	1.78
November -----	103,000	8,600	25,000	25,400	3.74	4.17
December -----	17,300	6,500	9,870	10,100	1.49	1.72
January -----	43,300	4,600	11,200	11,500	1.69	1.95
February -----	27,400	8,100	15,000	15,200	2.24	2.33
March -----	62,300	11,600	27,000	27,400	4.03	4.65
April -----	17,300	7,100	11,400	11,800	1.74	1.94
May -----	44,500	7,100	15,800	16,300	2.40	2.77
June -----	15,800	5,400	9,060	9,490	1.40	1.56
July -----	11,000	2,860	5,120	5,550	.816	.94
August -----	24,700	4,600	8,610	9,040	1.33	1.53
September -----	35,400	3,180	10,000	10,400	1.53	1.71
The Year -----	103,000	2,860	13,200	13,500	1.99	27.05

NOTE—"Natural Flow" is "Actual Flow" plus following diversions: Trenton Power Canal, 250 second-feet daily; Delaware and Raritan Canal feeder, 130 second-feet Oct. 1 to Nov. 30 and Mar. 1 to Sept. 30; Pennsylvania Canal, 50 second-feet Oct. 1 to Nov. 27 and Mar. 28 to Sept. 30.

DELAWARE BASIN—STATION NO. 13

## LITTLE SCHUYLKILL RIVER AT TAMAQUA

**Location.**—At three-span stone arch highway bridge, Broad Street, Tamaqua, Schuylkill County, about 500 feet upstream from the mouth of Panther Creek.

**Drainage Area.**—44 square miles.

**Records Available.**—June 23, 1916, to September 30, 1927.

**Gages.**—Standard chain attached to upstream side of bridge; read by W. P. Griffiths. Elevation of gage zero 788.84 feet, United States Geological Survey datum.

Automatic water stage recorder and inclined staff gage to 11 feet with vertical section above, installed June 21, 1927, on left side of the stream near Panther Valley Water Company Pumping Station, 3,600 feet upstream from the chain gage; inspected by employes of the Panther Valley Water Company. Elevation of zeros of both gages 28.62 feet above that of chain gage.

**Discharge Measurements.**—Made from upstream side of bridge or by wading.

**Channel and Control.**—At highway bridge both sides of the channel are outlined by retaining walls extending upstream and downstream from the bridge. Banks subject to overflow only during extreme floods. Bed is composed of gravel and rocks. Low-water control is a gravel bar extending diagonally across the channel at downstream side of bridge. Stage-discharge relation not permanent, owing to changes in the gravel bar and lodging of debris and waste on the control.

At the automatic gage both banks are high and not subject to overflow. Bed is composed of gravel and rocks. The control is about 50 feet downstream from the gage, where the bed is composed of boulders and large stones; probably permanent.

**Extreme of Discharge.**—Maximum stage during the year, 5.68 feet observed at 5 p. m. November 16 (discharge, about 2,740 second-feet); minimum stage recorded 1.33 feet at 11 p. m. September 30 (discharge, 25 second-feet).

**Ice.**—Stage-discharge relation usually affected by ice.

**Diversions.**—The Panther Valley Water Company pumps water from the river about one-half mile upstream from the gaging station for mine service, which is returned to the stream through Panther Creek.

**Accuracy.**—Stage-discharge relation permanent except when affected



by ice. Two rating tables used: The first applicable to chain gage heights to June 20, well defined below 200 second-feet and fairly well defined between 200 and 1,000 second-feet; the second applicable to automatic gage heights beginning June 20, well defined below and fairly well defined above 200 second-feet. Chain gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for discharges above 200 second-feet when they may be only fair.

Discharge measurements of Little Schuylkill River at Tamaqua during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
102	Apr. 25a	Geo. Weber	Feet	Sec.-ft.
103	25a	do	2.73	120
104	25b	J. M. Snavely	2.73	129
105	26b	do	2.72	109
106	May 9a	Geo. Weber	2.67	111
107	9a	do	2.57	85.9
108	17a	J. M. Snavely	2.53	82.9
109	17a	do	2.48	63.9
110	26a	Geo. Weber	2.47	66.9
111	26a	do	2.87	166
112	June 29a	J. M. Snavely	2.87	167
113	29a	do	1.57c	64.2
114	Aug. 26a	Geo. Weber	1.57c	64.8
115	26a	do	1.52c	53.2
			1.53c	54.3

a Measurement made by wading at pumping station of the Panther Valley Water Company, near automatic gage intake.

b Measurement made by wading 200 feet downstream from chain gage.

c Gage height at staff gage of automatic intake.

Daily Mean Gage Height, in feet, of Little Schuylkill River at Tamaqua for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.36	2.69	2.77	2.42	2.66	2.77	2.54	2.78	2.62	1.67	1.73	1.62
2	2.34	2.63	2.71	2.43	2.80	2.66	2.58	2.76	2.59	1.60	1.75	1.65
3	2.31	2.60	2.70	2.37	2.73	2.62	2.56	2.70	2.56	1.57	1.62	1.59
4	2.30	2.54	2.67	2.36	2.77	2.59	2.51	2.66	2.56	1.55	1.58	1.57
5	2.30	2.48	2.74	2.34	2.66	2.64	2.50	2.62	2.58	1.52	1.55	1.55
6	2.74	2.47	2.98	2.36	2.63	2.79	2.50	2.59	2.52	1.52	1.53	1.55
7	2.53	2.45	2.97	2.54	2.59	2.83	2.50	2.51	2.50	1.52	1.61	1.53
8	2.51	2.43	2.74	2.48	2.56	3.08	2.45	2.55	2.48	1.50	1.63	1.52
9	2.53	2.71	2.55	2.53	2.59	2.88	2.43	2.55	2.44	1.47	1.55	1.51
10	2.45	3.23	2.53	2.51	2.56	2.86	2.41	2.50	2.41	1.46	1.51	1.50
11	2.43	2.90	2.51	2.48	2.56	2.84	2.41	2.48	2.42	1.47	1.49	1.49
12	2.48	2.87	2.49	2.58	2.49	2.80	2.42	2.46	2.39	1.45	1.48	1.48
13	2.41	2.84	2.47	2.52	2.50	2.81	2.42	2.42	2.37	1.43	1.78	1.48
14	2.38	2.77	2.52	2.50	2.49	2.98	2.41	2.50	2.56	1.42	2.08	1.50
15	2.36	2.80	2.48	2.56	2.47	2.97	2.41	2.61	2.43	1.40	2.04	1.47
16	2.32	4.61	2.44	2.76	2.48	2.88	2.40	2.58	2.35	1.45	1.88	1.45
17	2.52	4.27	2.87	2.90	2.87	2.82	2.40	2.47	2.33	1.73	1.83	1.43
18	2.46	3.50	2.82	2.86	3.08	2.77	2.38	2.45	2.32	1.79	1.87	1.45
19	2.35	3.63	2.87	2.83	2.73	2.76	2.38	2.67	2.59	1.53	1.80	1.70
20	2.54	3.50	2.85	3.02	2.69	2.91	2.35	2.59	2.64	1.50	1.73	1.54
21	2.57	3.34	2.64	3.67	2.72	3.06	2.36	2.61	1.64	1.47	1.69	1.47
22	2.52	3.12	2.55	3.38	2.66	3.01	2.91	2.57	1.63	1.47	1.66	1.43
23	2.50	3.04	2.54	3.12	2.66	2.93	2.77	2.66	1.65	2.70	1.65	1.42
24	2.78	2.94	2.43	2.77	2.80	2.85	2.75	2.69	1.68	2.26	1.62	1.40
25	3.38	2.88	2.46	2.79	2.83	2.81	2.70	2.97	1.60	2.01	1.59	1.38
26	3.24	2.85	2.56	2.64	3.14	2.76	2.73	2.90	1.87	1.91	1.56	1.37
27	3.04	3.02	2.67	2.74	2.95	2.71	2.83	2.87	1.68	1.87	1.69	1.37
28	2.92	2.91	2.50	2.71	2.84	2.67	2.85	2.82	1.65	1.82	1.68	1.36
29	2.60	2.87	2.43	2.73	2.83	2.62	2.85	2.75	1.62	1.72	1.83	1.37
30	2.66	2.85	2.41	2.87	2.83	2.63	2.81	2.73	1.61	1.69	1.68	1.34
31	2.81	2.44	2.75	2.75	2.58	2.71	2.71	2.71	1.76	1.68	1.68	1.34

NOTE—Stage-discharge relation Dec. 5-8, 17-21, 26-28, Jan. 7-20, 27-29 and Feb. 21 affected by ice.

Daily discharge, in second-feet, of Little Schuylkill River at Tamaqua for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	112	140	55	104	140	76	143	93	62	72	55
2	44	96	118	57	150	104	84	136	86	52	76	60
3	40	88	115	48	126	93	80	115	80	48	55	51
4	39	76	107	47	140	86	70	104	80	46	50	48
5	39	65	100	44	104	99	68	93	84	42	46	46
6	129	63	95	47	96	146	68	86	72	42	44	46
7	74	60	90	44	86	164	68	70	68	42	54	44
8	70	57	85	44	80	298	60	78	65	40	56	42
9	74	118	78	44	86	187	57	78	58	37	46	41
10	60	396	74	44	80	178	54	68	54	36	41	40
11	57	196	70	44	80	168	54	65	55	37	39	39
12	65	182	66	44	66	150	55	62	51	36	38	38
13	54	168	63	48	68	155	55	55	48	34	81	38
14	49	140	72	60	66	239	54	68	80	33	165	40
15	47	150	65	50	63	234	54	91	57	31	150	37
16	42	1,580	58	50	65	187	52	84	45	36	103	36
17	72	1,290	60	50	182	159	52	63	43	72	92	34
18	62	600	60	50	298	140	49	60	42	83	100	36
19	45	722	60	55	126	136	49	107	86	44	85	67
20	76	600	60	80	112	201	45	86	99	40	72	45
21	82	475	60	722	110	286	47	91	58	37	66	37
22	72	330	78	505	104	256	201	82	66	37	61	34
23	68	274	76	323	104	212	140	104	60	495	60	33
24	143	218	57	140	150	173	132	112	64	246	55	31
25	505	187	62	146	164	155	115	234	52	139	51	29
26	403	173	65	99	336	136	126	196	100	110	47	29
27	274	262	70	90	223	118	164	182	64	100	66	29
28	207	201	65	90	168	107	173	159	60	89	64	28
29	88	182	57	110	93	173	132	55	71	93	29	29
30	104	173	54	182	96	155	126	54	66	64	64	26
31	155	58	132	132	84	118	118	78	64	64	64	26

NOTE—Discharge does not include quantity of water diverted by the Panther Valley Water Company. Discharge Dec. 5-8, 17-21, 26-28, Jan. 7-20, 27-29 and Feb. 21 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Schuylkill River at Reading, Little Lehigh Creek at Allentown and Lackawanna River at Moosic.

Monthly discharge of Little Schuylkill River at Tamaqua for the year ending Sept. 30, 1927.

(Drainage area 44 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	505	39	106	2.41	2.78
November	1,580	57	308	7.00	7.81
December	140	54	75.4	1.72	1.98
January	722	44	114	2.59	2.99
February	336	63	126	2.86	2.98
March	298	84	161	3.66	4.22
April	201	45	87.7	1.99	2.22
May	234	55	105	2.39	2.76
June	100	42	65.6	1.49	1.66
July	495	31	76.2	1.73	1.99
August	165	38	69.5	1.58	1.82
September	67	26	39.6	.900	1.00
The Year	1,580	26	111	2.52	34.21

NOTE—Discharge does not include the quantity of water diverted by the Panther Valley Water Co., Run-off does include the quantity of water diverted.



## DELAWARE BASIN—STATION NO. 14

## SCHUYLKILL RIVER AT READING

*Location.*—At concrete viaduct, Penn Street, Reading, Berks County.

*Drainage Area.*—900 square miles.

*Records Available*—May 6, 1914, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by H. J. Kline. Elevation of gage zero 188.50 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is high and not subject to overflow; left is low and stream begins to overflow the canal tow-path at a stage of 6.8 feet. Bed is composed of gravel. Low-water control is at a slight riffle about 700 feet downstream from the gage; may shift occasionally. Control for high stages is probably at the Pennsylvania Railroad bridge about 900 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 10.0 feet at 4 a. m. November 17 (discharge, 18,100 second-feet); minimum, -0.64 foot at 4.30 p. m. September 28 (discharge, 268 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Diversions.*—During navigation season water is diverted past the gage through the Schuylkill Navigation Company Canal, which follows along the left bank.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 8,000 second-feet, and fairly well defined above. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for low stages, when they are fair, owing to uncertain quantity of water diverted by canal.

*Discharge measurements of Schuylkill River at Reading during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
68	Oct. 21	J. M. Snavelly	1.02	1,350
69	21	do	.96	1,290
70	May 18	do	.64	1,000
71	18	do	.63	1,020
72	Aug. 29	Geo. Weber	.34	812
73	Sept. 12	O. H. Young	- 0.36	396

*Daily Mean Gage Height, in feet, of Schuylkill River at Reading for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.49	1.49	1.79	1.03	1.45	2.19	0.95	1.60	1.10	0.88	0.82	0.08
2	.38	1.26	1.58	.46	1.27	1.98	1.01	1.41	.98	.50	1.38	.15
3	.33	1.08	1.30	.86	1.52	1.20	1.05	1.27	.71	.35	.72	.01
4	.38	.98	1.44	1.02	1.36	1.34	.95	1.09	.80	.28	.45	-.11
5	.37	.85	.98	1.05	1.12	1.43	.86	1.05	1.48	.16	.28	-.23
6	2.72	.78	1.00	1.10	.97	1.62	.89	.94	1.08	.04	.15	-.23
7	2.08	.70	1.10	.50	.97	1.65	.83	.81	.68	.10	.09	-.30
8	1.59	.62	1.29	.25	1.19	2.40	.71	.64	.62	.16	.21	-.26
9	1.28	.66	1.12	.14	1.05	2.51	.61	.70	.54	-.01	.91	-.34
10	1.05	3.41	1.08	.24	1.02	2.11	.57	.66	.45	-.02	.21	-.20
11	.91	2.16	1.02	.22	.99	1.88	.55	1.13	.42	-.03	.07	-.34
12	.78	1.81	.98	.16	.80	1.71	.51	.68	.38	-.22	.02	-.32
13	.68	1.57	.99	.12	.75	1.74	.46	.50	.28	-.11	-.05	-.52
14	.69	1.44	1.08	1.19	.75	1.98	.45	.45	.38	-.19	-.27	-.45
15	.57	1.30	1.06	1.12	.91	2.30	.42	1.14	.92	.29	.71	-.32
16	.43	3.60	.28	-.10	1.41	1.94	.40	.89	.46	.06	.29	-.48
17	.42	7.92	.51	.36	1.09	1.78	.54	.84	.24	.52	.07	-.46
18	.43	5.30	.40	.40	2.45	1.63	.47	.66	.11	.79	.15	-.46
19	.60	7.25	.35	1.16	2.13	1.51	.40	.63	.33	.55	.19	-.10
20	.54	5.44	.58	4.18	1.19	1.80	.32	1.02	2.84	.22	.01	.15
21	1.12	4.10	.70	4.96	1.55	2.01	.22	.71	2.18	.20	-.05	.05
22	.68	3.34	.71	3.09	1.47	2.34	1.55	.64	1.65	.01	-.11	-.32
23	.56	2.80	.60	2.65	1.45	2.14	2.13	.68	1.52	1.98	-.11	-.40
24	.55	2.45	.40	1.83	1.79	2.04	1.61	.69	1.38	2.02	-.10	-.40
25	4.59	2.18	.65	1.81	2.70	1.70	1.61	1.85	.96	1.36	-.25	-.40
26	3.96	2.10	3.31	1.40	4.29	1.35	1.37	2.16	1.05	.90	-.34	-.45
27	3.00	2.92	1.40	.51	3.28	1.52	1.57	2.04	.90	.95	-.10	-.47
28	2.42	2.04	1.22	.91	2.64	1.36	2.11	1.82	.62	.55	-.11	-.61
29	2.00	1.90	2.08	2.31	-----	1.24	1.90	1.48	.50	.42	.29	-.48
30	1.70	2.08	1.42	2.59	-----	1.11	1.87	1.44	.42	.32	.41	-.54
31	1.51	-----	.94	2.08	-----	1.17	-----	1.28	-----	.46	.11	-----

NOTE—Stage-discharge relation Jan. 17 and 18 affected by ice.

*Daily discharge, in second-feet, of Schuylkill River at Reading for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	910	1,800	2,120	1,330	1,700	2,560	1,330	1,900	1,420	1,240	1,150	636
2	834	1,600	1,900	872	1,600	2,340	1,330	1,700	1,330	910	1,700	667
3	799	1,420	1,600	1,240	1,800	1,510	1,330	1,600	1,070	799	1,070	578
4	834	1,330	1,700	1,330	1,700	1,600	1,330	1,420	1,150	764	872	522
5	799	1,150	1,330	1,330	1,420	1,700	1,240	1,330	1,800	667	764	445
6	3,150	1,150	1,330	1,420	1,330	1,900	1,240	1,240	1,420	607	667	445
7	2,450	1,070	1,420	910	1,330	1,900	1,150	1,150	1,070	636	636	420
8	1,900	990	1,600	731	1,510	2,800	1,070	990	990	667	698	445
9	1,600	1,070	1,420	667	1,330	2,910	990	1,070	910	578	1,240	396
10	1,330	4,030	1,420	731	1,330	2,450	990	1,070	872	578	698	470
11	1,240	2,560	1,330	698	1,330	2,230	990	1,420	834	550	607	396
12	1,150	2,120	1,330	667	1,150	2,010	910	1,070	834	470	578	420
13	1,070	1,900	1,330	636	1,150	2,010	872	910	764	522	550	318
14	1,070	1,700	1,420	1,510	1,150	2,340	872	872	834	470	445	350
15	990	1,600	1,420	1,420	1,240	2,680	834	1,420	1,240	764	1,070	420
16	872	4,300	764	522	1,700	2,230	834	1,240	872	607	764	327
17	834	12,600	910	500	1,420	2,120	910	1,150	731	910	607	350
18	872	6,920	834	650	2,800	1,900	872	1,070	636	1,150	667	396
19	990	10,900	799	1,510	2,450	1,800	834	990	799	990	698	522
20	910	7,100	990	5,130	1,510	2,120	764	1,330	3,270	698	578	667
21	1,420	4,990	1,070	6,380	1,900	2,340	698	1,070	2,560	698	550	607
22	1,070	3,900	1,070	3,640	1,800	2,680	1,900	990	1,900	578	522	420
23	990	3,270	990	3,030	1,700	2,450	2,450	1,070	1,800	2,340	522	372
24	990	2,800	834	2,120	2,120	2,340	1,900	1,070	1,700	2,340	522	372
25	5,720	2,560	990	2,120	3,150	2,010	1,900	2,120	1,330	1,700	445	372
26	4,840	2,450	3,900	1,700	5,270	1,700	1,700	2,560	1,330	1,240	396	350
27	3,510	3,390	1,700	910	3,900	1,800	1,900	2,340	1,240	1,330	522	350
28	2,800	2,340	1,510	1,240	3,030	1,700	2,450	2,120	990	990	522	280
29	2,340	2,230	2,450	2,680	-----	1,510	2,230	1,800	910	834	764	327
30	2,010	2,450	1,700	3,030	-----	1,420	2,230	1,700	834	764	834	310
31	1,800	-----	1,240	2,450	-----	1,510	-----	1,600	-----	872	636	-----

NOTE—Discharge does not include the quantity of water diverted past the gage through Schuylkill Navigation Company Canal. Canal was closed Dec. 4 to May 31. Discharge Jan. 17 and 18 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Little Schuylkill River at Tamaqua and Lehigh River at Bethlehem.



Monthly discharge of Schuylkill River at Reading for the year ending Sept. 30, 1927.  
(Drainage area 900 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,720	799	1,680	1.87	2.16
November	12,600	990	3,260	3.62	4.04
December	3,900	764	1,430	1.59	1.83
January	6,380	500	1,710	1.90	2.19
February	5,270	1,150	1,920	2.13	2.22
March	2,910	1,420	2,080	2.31	2.66
April	2,450	698	1,340	1.49	1.66
May	2,560	872	1,400	1.56	1.80
June	3,270	636	1,250	1.39	1.55
July	2,340	470	912	1.01	1.16
August	1,700	396	719	.799	.92
September	667	280	432	.480	.54
The Year	12,600	280	1,510	1.68	22.73

NOTE—Discharge and run-off does not include the water diverted past the gage through the Schuylkill Navigation Company Canal. Canal was closed Dec. 4 to May 31.

#### DELAWARE BASIN—STATION NO. 15

#### SCHUYLKILL RIVER AT POTTSTOWN

*Location.*—At two-span steel highway bridge, Hanover Street, Pottstown, Montgomery County.

*Drainage Area.*—1,170 square miles.

*Records Available.*—August 1, 1927, to September 30, 1927.

*Gage.*—Standard chain attached to bridge between the roadway and the downstream sidewalk; read by Albert Reed. Elevation of gage zero 117.81 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of culm and gravel. The control is at a series of riffles, where the bed is composed of coarse gravel, at the heads of three islands, about 4,000 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the period, August 1, 1927, to September 30, 1927, 3.55 feet observed at 8 a. m., August 9 (discharge, 3,160 second-feet); minimum, 1.15 feet at 8.40 a. m. September 30 (discharge, 405 second-feet).

*Ice.*—Stage-discharge relation is usually affected by ice during severe winters.

*Diversions.*—During navigation season water is diverted past the

gage through the Schuylkill Navigation Company Canal, which follows along the stream about 1,200 feet from the right bank. From August 1, 1927, to September 30, 1927, it was estimated by the Schuylkill Navigation Company that the discharge was about 35 second-feet.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined. Gage read thrice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height, computed from a continuous daily hydrograph obtained by plotting gage readings, to rating table. Results good.

*Cooperation.*—Station was established and is maintained in cooperation with Pennsylvania Department of Health, Sanitary Water Board.

Discharge measurements of Schuylkill River at Pottstown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
1	Aug. 2	Geo. Weber	Feet 3.14	Sec.-ft. 2,400
2	Aug. 29	do	1.85	945
3	Sept. 12	do	1.22	442

Daily Mean Gage Height, in feet, of Schuylkill River at Pottstown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												1.83
2											3.20	1.89
3											2.58	1.81
4											2.19	1.63
5											2.07	1.58
6											1.96	1.49
7											1.82	1.53
8											1.99	1.49
9											3.15	1.47
10											2.20	1.47
11											1.91	1.47
12											1.83	1.38
13											1.76	1.38
14											1.84	1.22
15											2.25	1.38
16											2.09	1.43
17											1.83	1.28
18											2.20	1.48
19											2.07	2.45
20											1.86	1.90
21											1.72	1.62
22											1.70	1.49
23											1.67	1.37
24											1.69	1.45
25											1.60	1.35
26											1.56	1.32
27											1.70	1.31
28											1.87	1.32
29											1.99	1.19
30											2.10	1.17
31											1.95	

NOTE—Station established Aug. 2, 1927. Gage height Aug. 9 corresponds to discharge averaged for intervals of day.



Daily discharge, in second-feet, of Schuylkill River at Pottstown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											1,900	955
2											2,550	1,000
3											1,770	910
4											1,310	778
5											1,150	735
6											1,050	650
7											910	692
8											1,100	650
9											2,480	610
10											1,310	610
11											1,000	610
12											955	570
13											865	570
14											955	435
15											1,360	570
16											1,200	610
17											955	500
18											1,310	650
19											1,150	1,590
20											955	1,000
21											820	735
22											820	650
23											778	535
24											820	610
25											735	535
26											692	500
27											820	500
28											955	500
29											1,100	435
30											1,200	405
31											1,050	

NOTE—Station established Aug. 2, 1927. Record does not include the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal. Canal was opened for navigation early in the season, but very few boats passed through the canal and only sufficient water was diverted from the river to maintain the proper level. It has been estimated that about 35 second-feet were necessary for that purpose. Discharge Aug. 1 estimated, because of no gage height record, from discharge of Schuylkill River at Reading. Discharge Aug. 9 averaged for intervals of the day.

Monthly discharge of Schuylkill River at Pottstown for the year ending Sept. 30, 1927.

(Drainage area 1,170 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October					
November					
December					
January					
February					
March					
April					
May					
June					
July					
August	2,550	692	1,200	1.03	1.19
September	1,590	405	705	.603	.67
The Year					

NOTE—Station established Aug. 2, 1927. Discharge and run-off does not include the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal.

# DELAWARE BASIN—STATION NO. 16

## PERKIOMEN CREEK AT GRATERS FORD

*Location.*—At two-span steel highway bridge, Graters Ford, Montgomery County.

*Drainage Area.*—280 square miles.

*Records Available.*—June 11, 1914, to September 30, 1927.

*Gages.*—Standard chain attached to upstream side of bridge, inclined staff installed in August, 1921, on left bank 1.650 feet upstream from chain gage, and automatic water stage recorder installed September 14, 1927, at the staff gage. Chain and staff gages read and automatic gage inspected by C. K. Kulp. Elevation of chain gage zero 109.08 feet, United States Geological Survey datum. Elevation of staff gage zero is 3.29 feet above that of the zero of chain gage, instead of 3.23 feet, as published previous to 1926.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—The right bank is high and does not overflow; the left is of medium height but not subject to overflow. There is a flood plane, about 1,200 feet wide, along the left side of the stream, that becomes inundated at a gage height of about 11 feet. Bed is composed of gravel and rock. Low stages at the chain gage are affected by backwater from the dam at Ironbridge. Control for low stages at the staff gage is at a riffle about 200 feet downstream from the gage, where the bed is composed of gravel and large stones; probably permanent. Control for medium and high stages, for both gages, is the dam at Ironbridge.

*Extremes of Stage.*—Chain gage. Maximum gage height during the year, 11.60 feet observed at 5 p. m. November 16; minimum, 2.90 feet at 5 p. m. July 19, when it was abnormally low, due to operations at mill or repairs to dam at Ironbridge.

*Extremes of Discharge.*—Staff gage. Maximum stage during the year estimated from hydrograph, 10.2 feet at 5 p. m. November 16; (discharge, about 13,000 second-feet); minimum stage recorded, 1.16 feet at 11 p. m. September 29 (discharge, 45 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Regulations.*—Stage-discharge relation during low stages at the chain gage is affected by operation of grist mill at Ironbridge.

*Accuracy.*—Stage-discharge relation permanent except when affected



by ice. Rating curve well defined below 1,000 second-feet. Staff gage read to hundredths, twice daily until September 13, 1927; subsequent to that date several times weekly. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they may be only fair.

Discharge measurements of Perkiomen Creek at Graters Ford during the year ending Sept. 30, 1927.

No.	Date	Made by	Staff Gage Height	Discharge
			Feet	Sec.-ft.
52	Oct. 19	Geo. Weber	1.76	130
53	19	do	1.76	135
54	May 9	J. M. Snavely	1.49	120
55	9	do	1.49	117
56	July 19	do	1.32	70.9
57	19	do	1.34	71.1
58	Aug. 3	Geo. Weber	2.16	399
59	4	do	1.86	287
60	30	do	2.84	910
61	Sept. 13	do	1.25	40.7

NOTE—Measurements made by wading 1,200 feet upstream from staff gage, excepting No. 60 taken from highway bridge.

Daily Mean Gage Height, in feet, of Perkiomen Creek at Graters Ford (staff and automatic gages) for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.50	2.53	2.62	2.17	2.04	2.16	1.70	1.76	1.71	1.42	2.99	1.89
2	1.48	2.29	2.40	2.08	1.85	2.06	1.76	1.68	1.61	1.42	3.15	1.75
3	1.50	2.17	2.27	2.04	1.95	1.95	1.85	1.64	1.58	1.39	2.10	1.67
4	1.74	2.12	2.20	2.12	2.06	1.93	1.78	1.64	1.63	1.39	1.87	1.63
5	1.70	2.06	2.14	2.08	2.04	1.96	1.76	1.68	2.37	1.39	1.65	1.55
6	1.64	2.03	2.10	2.07	2.02	1.96	1.85	1.64	1.89	1.32	1.59	1.57
7	1.60	1.98	2.02	2.04	1.87	1.95	1.73	1.65	1.64	1.33	1.50	1.49
8	1.60	1.92	2.01	2.00	1.99	2.12	1.66	1.63	1.57	1.38	1.56	1.45
9	1.59	2.32	2.00	1.99	1.83	2.06	1.67	1.59	1.49	1.36	3.61	1.47
10	1.58	3.54	2.06	1.91	1.81	2.01	1.64	1.61	1.39	1.32	2.23	1.41
11	1.64	2.46	2.04	1.81	1.81	2.02	1.61	2.08	1.40	1.36	1.85	1.38
12	1.62	2.23	2.10	1.79	1.79	2.06	1.54	1.78	1.39	1.36	1.67	1.36
13	1.65	2.19	2.21	1.78	1.81	2.08	1.51	1.68	1.37	1.32	1.55	1.32
14	1.64	2.37	2.28	3.29	1.85	2.54	1.47	1.61	1.63	1.32	2.11	1.63
15	1.64	2.06	2.27	4.86	2.14	2.39	1.47	1.93	1.71	1.28	2.32	1.53
16	1.62	5.31	2.25	4.24	2.39	2.11	1.49	1.77	1.57	1.31	1.85	1.43
17	1.67	4.15	2.29	4.08	2.25	2.00	1.59	1.66	1.49	1.33	1.69	1.36
18	1.67	2.86	2.25	3.96	2.75	1.95	1.55	1.63	1.42	1.31	2.11	1.48
19	1.69	3.70	2.19	4.00	2.35	2.03	1.49	1.63	1.80	1.28	1.97	2.51
20	1.80	2.92	2.12	5.54	2.37	2.14	1.51	1.66	3.80	1.27	1.69	1.93
21	2.46	2.53	2.05	4.98	2.33	2.08	1.58	1.61	2.18	1.28	1.57	1.67
22	1.98	2.31	1.96	3.47	2.16	2.01	3.14	1.56	1.84	1.55	1.55	1.56
23	1.78	2.25	1.95	2.63	2.39	1.96	2.95	1.52	1.78	3.05	1.58	1.48
24	2.44	2.19	2.12	2.38	3.44	1.86	2.12	1.63	1.68	2.46	1.65	1.45
25	5.76	2.14	2.31	2.27	3.16	1.81	1.80	3.50	1.54	1.62	1.51	1.33
26	2.96	2.09	4.21	2.12	2.87	1.82	1.70	2.77	1.50	1.52	1.49	1.39
27	2.41	2.08	3.17	2.06	2.51	1.79	2.34	2.23	1.54	1.46	3.46	1.34
28	2.26	2.02	3.27	2.10	2.30	1.76	2.70	1.77	1.45	1.38	3.27	1.31
29	2.20	2.10	4.09	2.92	-----	1.68	2.04	1.71	1.45	1.37	2.87	1.30
30	2.17	3.09	2.44	2.93	-----	1.68	1.83	1.68	1.46	1.40	2.62	1.34
31	2.37	-----	2.21	2.51	-----	1.74	-----	1.72	-----	1.52	1.96	-----

NOTE—Stage-discharge relation Dec. 16-25 and Jan. 14-20 affected by ice.

Daily Mean Gage Height, in feet, of Perkiomen Creek at Graters Ford (chain gage) for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.87	4.46	4.62	4.58	4.34	4.41	4.22	4.24	4.04	3.91	5.85	4.27
2	3.98	4.25	4.40	4.48	4.22	4.38	4.32	4.18	4.05	4.00	5.25	4.22
3	4.01	4.21	4.36	4.36	4.25	4.34	4.33	4.18	4.03	4.01	4.32	4.20
4	4.31	4.21	4.34	4.42	4.36	4.33	4.26	4.20	4.11	4.03	4.02	4.11
5	4.24	4.16	4.36	4.42	4.40	4.38	4.26	4.18	4.53	3.71	4.06	4.04
6	4.18	4.22	4.29	4.39	4.40	4.44	4.28	4.16	4.25	3.53	4.14	4.08
7	4.14	4.26	4.24	4.36	4.30	4.38	4.33	4.19	4.11	3.63	4.16	3.92
8	4.08	4.18	4.21	4.31	4.36	4.40	4.26	4.22	4.02	3.73	4.27	3.84
9	4.16	4.47	4.18	4.34	4.26	4.36	4.25	4.18	3.91	3.95	6.28	3.92
10	4.14	5.25	4.20	4.24	4.28	4.33	4.26	4.18	3.90	3.98	4.47	3.98
11	4.14	4.46	4.23	4.17	4.27	4.38	4.15	4.34	3.95	3.68	4.29	4.06
12	4.13	4.34	4.23	4.14	4.28	4.40	4.10	4.19	3.95	3.46	4.12	3.96
13	4.12	4.28	4.27	4.13	4.32	4.37	4.10	4.11	3.81	3.21	4.11	3.73
14	4.14	4.31	4.30	5.71	4.36	4.66	4.08	4.18	4.07	3.33	4.38	4.14
15	4.16	4.26	4.30	7.30	4.52	4.56	4.08	4.36	4.09	3.27	4.39	4.02
16	4.16	7.16	4.30	6.42	4.58	4.39	4.11	4.21	4.07	3.64	4.18	3.93
17	4.21	5.88	4.32	6.10	4.47	4.34	4.20	4.16	4.00	3.89	4.06	3.96
18	4.20	4.67	4.30	5.88	4.76	4.30	4.06	4.14	4.03	3.52	4.37	4.04
19	4.16	5.33	4.30	6.12	4.44	4.36	3.98	4.12	4.37	3.10	4.22	4.50
20	4.16	4.72	4.27	8.11	4.43	4.42	4.02	4.11	5.72	3.55	4.20	4.27
21	4.42	4.53	4.22	7.03	4.38	4.38	4.05	4.16	4.35	3.26	4.23	4.08
22	4.17	4.40	4.20	5.52	4.52	4.42	5.01	4.18	4.17	3.94	4.10	4.00
23	4.18	4.36	4.20	4.97	4.50	4.36	4.92	4.08	4.14	5.16	4.06	3.95
24	4.50	4.34	4.23	4.83	5.23	4.38	4.46	4.25	4.05	4.57	4.14	4.01
25	7.20	4.31	4.30	4.70	5.02	4.35	4.23	5.52	4.08	4.10	3.89	4.02
26	4.82	4.28	5.97	4.52	4.74	4.40	4.23	4.75	4.08	4.05	4.14	3.96
27	4.40	4.34	5.21	4.43	4.56	4.36	5.17	4.46	4.03	3.98	5.45	3.24
28	4.29	4.30	5.34	4.46	4.46	4.28	5.48	4.21	3.97	3.76	5.37	3.27
29	4.28	4.40	5.75	5.26	-----	4.20	4.24	4.19	3.91	3.64	4.89	3.28
30	4.26	5.01	5.06	5.20	-----	4.20	4.26	4.11	3.92	3.78	4.66	3.36
31	4.40	-----	4.74	4.73	-----	4.24	-----	4.11	-----	3.96	4.16	-----

NOTE—Stage-discharge relation Dec. 10-26 and Jan. 14-20 affected by ice. Gage height Sept. 27-30 probably affected by unusual operations at mill or repairs to dam at Ironbridge.

Daily discharge, in second-feet, of Perkiomen Creek at Graters Ford for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	125	655	695	392	340	392	190	214	194	103	1,080	266
2	120	480	545	365	250	340	214	183	158	103	1,250	210
3	125	392	450	340	292	292	250	169	149	95	365	180
4	206	365	420	365	340	284	222	169	166	95	258	166
5	190	340	392	365	340	297	214	183	512	95	172	140
6	169	340	365	340	315	297	250	169	266	77	152	146
7	155	306	315	340	258	292	202	172	169	80	125	122
8	155	279	315	315	310	365	176	166	146	93	143	112
9	152	480	315	310	242	340	180	152	122	88	1,840	117
10	149	1,700	340	274	234	315	169	158	95	77	450	101
11	169	580	340	234	234	315	158	365	98	88	250	93
12	162	450	365	226	226	340	137	222	95	88	180	88
13	172	420	420	222	234	365	128	183	90	77	140	77
14	169	512	480	550	250	655	117	158	166	77	365	166
15	169	340	450	480	392	545	117	284	194	68	480	134
16	162	4,540	400	200	545	365	122	218	146	75	250	106
17	180	2,750	320	160	450	315	152	176	122	80	186	88
18	180	920	280	160	825	292	140	166	103	75	365	120
19	186	1,980	260	320	512	340	122	166	230	68	302	615
20	230	970	260	1,600	512	392	128	176	2,130	66	186	284
21	580	655	260	4,030	512	365	149	158	420	68	146	180
22	306	480	280	1,630	392	315	1,250	143	246	140	140	143
23	222	450	220	738	545	297	1,020	131	222	1,140	149	120
24	580	420	190	545	1,630	254	365	166	183	580	172	112
25	5,380	392	190	450	1,250	234	230	1,700	137	162	128	80
26	1,020	365	2,750	365	920	238	190	825	125	131	122	95
27	545	365	1,250	340	615	226	512	450	137	114	1,630	82
28	450	315	1,370	365	480	214	780	218	112	93	1,370	75
29	420	365	2,590	970	-----	183	340	194	112	90	920	72
30	392	1,190	580	1,020	-----	183	242	183	114	98	695	82
31	512	-----	420	615	-----	206	-----	198	-----	131	297	-----

NOTE—Discharge Dec. 16-25 and Jan.



Monthly discharge of Perkiomen Creek at Graters Ford for the year ending Sept. 30, 1927.

(Drainage area 280 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,380	120	443	1.58	1.82
November	4,540	279	793	2.83	3.16
December	2,750	190	575	2.05	2.36
January	4,030	160	601	2.15	2.48
February	1,630	226	480	1.71	1.78
March	655	183	318	1.14	1.31
April	1,250	117	282	1.01	1.13
May	1,700	131	265	.946	1.09
June	2,130	90	239	.854	.95
July	1,140	66	142	.507	.58
August	1,840	122	462	1.65	1.90
September	615	72	146	.521	.58
The Year	5,380	66	395	1.41	19.14

DELAWARE BASIN—STATION NO. 17

### SCHUYLKILL RIVER AT NORRISTOWN

*Location.*—At seven-span concrete highway bridge, DeKalb Street, between Norristown and Bridgeport, Montgomery County.

*Drainage Area.*—1,760 square miles.

*Records Available.*—August 1, 1927, to September 30, 1927.

*Gages.*—Standard chain attached to upstream side of bridge in first span from Bridgeport. Vertical staff and automatic water stage recorder attached to downstream end of Bridgeport abutment, Schuylkill Navigation Company dam, about 800 feet upstream from chain gage. Vertical staff at the canal intake about 100 feet upstream from automatic gage, which registers head on dam, and vertical staff at canal overflow, about one mile downstream from the intake gage, which registers head on overflow weir. Gages read and inspected by Howard Casselberry.

*Discharge Measurements.*—Made from upstream side of Ford Street Bridge, about one-half mile downstream from chain gage.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and large stones. Chain gage is located on a control section in the river, extending for some distance up and downstream from the gage; probably permanent. The control for the

river staff and automatic gages is about 100 feet downstream, where the bed is composed of large stones; probably permanent. The control for canal intake gage is the Schuylkill Navigation Company dam; permanent. Stage-discharge relation changed during low flows by the use of flashboards on the dam and possible change in amount of gage opening at head of canal. The control for the canal overflow gage is the weir section of the overflow; permanent.

*Extremes of Discharge.*—Maximum stage during the period, August 1, 1927, to September 30, 1927, 6.70 feet observed at 7 a. m. August 9 (discharge, about 32,000 second-feet); minimum, 0.32 foot at 3 p. m. September 13 (discharge, 381 second-feet).

*Ice.*—Stage-discharge relation is usually affected by ice during severe winters.

*Diversions.*—Water is diverted past the gage through the Schuylkill Navigation Company Canal on the Bridgeport side of the river for industrial water supplies. On the Norristown side of the river the water used by the McCarter Iron Works is diverted past the gage but it is returned to the river above the Ford Street Bridge and is included in the river flow when discharge measurements are made.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined from 300 to 10,000 second-feet and fairly well defined above and below those limits. Chain, river staff and canal intake gages read to hundredths twice daily; canal outlet gage read occasionally. Daily discharge ascertained by applying daily mean gage heights, computed from automatic water stage recorder chart, to rating table. Results good.

*Cooperation.*—Station was established and is maintained in cooperation with Pennsylvania Department of Health, Sanitary Water Board.

Discharge measurements of Schuylkill River at Norristown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
1	Aug. 4	C. H. Young	Feet 2.72	Sec.-ft. 2,010
2	Sept. 13	Geo. Weber	1.93	725



Daily Mean Gage Height, in feet, of Schuylkill River at Norristown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												1.36
2												1.22
3												1.20
4												1.08
5											1.30	.94
6											1.28	.91
7											1.10	.86
8											1.14	.83
9											4.65	.80
10											1.85	.76
11											1.38	.80
12											1.18	.78
13											1.11	.65
14											1.50	.87
15											1.65	.72
16											1.48	.87
17											1.23	.75
18											1.41	.68
19											1.54	3.05
20											1.30	1.54
21											1.10	1.14
22											1.06	.96
23											1.02	.85
24											1.01	.80
25											.95	.79
26											.88	.75
27											1.83	.70
28											1.55	.66
29											1.66	.70
30											1.54	.66
31											1.32	

NOTE—Station established Aug. 5, 1927. Gage height Aug. 9 and Sept. 19 corresponds to discharge averaged for intervals of the day.

Daily discharge, in second-feet, of Schuylkill River at Norristown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											3,500	1,880
2											4,500	1,600
3											2,500	1,600
4											2,000	1,430
5											1,780	1,180
6											1,780	1,100
7											1,430	1,020
8											1,520	1,020
9											14,800	950
10											3,010	885
11											1,970	950
12											1,600	950
13											1,430	758
14											2,180	1,020
15											2,520	820
16											2,180	1,020
17											1,690	885
18											1,970	820
19											2,290	6,780
20											1,780	2,290
21											1,430	1,520
22											1,340	1,180
23											1,260	1,020
24											1,260	950
25											1,180	950
26											1,100	885
27											3,010	820
28											2,290	758
29											2,520	820
30											2,290	758
31											1,780	

NOTE—Station established Aug. 5, 1927. Discharge does not include the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal. Discharge, estimated Aug. 1 and 2, because of no gage height record, from discharge of Schuylkill River at Pottstown and Perkiomen Creek at Graters Ford; computed for Aug. 3 and 4 from chain gage heights, and averaged for Aug. 9 and Sept. 19 for intervals of the day.

Monthly discharge of Schuylkill River at Norristown for the year ending Sept. 30, 1927.

(Drainage area 1,760 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October					
November					
December					
January					
February					
March					
April					
May					
June					
July					
August	14,800	1,100	2,450	1.45	1.67
September	6,780	758	1,290	.773	.86
The Year					

NOTE—Station established Aug. 5, 1927. Discharge does not include the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal. Run-off does include the quantity of water diverted.

#### DELAWARE BASIN—STATION NO. 18

#### BRANDYWINE CREEK AT CHADDS FORD

*Location.*—At two-span steel Pennsylvania Railroad bridge, Chadds Ford, Delaware County.

*Drainage Area.*—285 square miles.

*Records Available.*—August 1, 1911, to September 30, 1927.

*Gages.*—Standard chain attached to upstream side of bridge; read by H. W. Guest. Automatic water stage recorder installed May 21, 1927, with stream side of well on line with face of left abutment 30 feet upstream from the chain gage; inspected by H. W. Guest. Elevation of gage zeros 150.18 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—The right bank is low and the stream begins to overflow a flat 700 feet wide at a stage of about 6 feet. Left bank is high and not subject to overflow. Bed is composed of mud, gravel and stones. Control is at the first of a series of low riffles, about 150 feet downstream from the gage, where the bed is composed of gravel; shifts occasionally.

*Extremes of Discharge.*—Maximum stage recorded during the year, 10.10 feet at 1 p. m. September 19 (discharge, about 10,200 second-feet); minimum stage recorded, 0.83 foot at 6 p. m. September 13 (discharge 86 second-feet).



*Ice.*—Stage-discharge relation usually affected by ice.

*Regulation.*—Fluctuations in stage during low water are caused by the operation of a mill about 200 feet upstream from the gage.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,200 second-feet and fairly well defined from 1,200 to 2,000 and 6,000 to 10,000 second-feet. Chain gage read to hundredths twice daily until May 21, 1927; subsequent to that date several times weekly. Daily discharge ascertained by applying daily mean gage height to rating table. Results good, except for medium and high stages when they may be only fair.

*Discharge measurements of Brandywine Creek at Chadds Ford during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
49	Apr. 28	Geo. Weber	Feet	Sec.-ft.
50	28	do	2.26	571
51	May 10a	J. M. Snively	2.18	534
52	10a	do	1.69	324
53	Aug. 31	Geo. Weber	1.60	326
			1.30	222

a Measurement made by wading 500 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Brandywine Creek at Chadds Ford for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.44	2.66	2.51	1.96	1.82	2.14	1.61	1.45	1.33	2.52	2.20	
2	1.29	1.84	2.03	1.76	1.72	2.04	1.71	1.73	1.42	1.27	3.62	1.65
3	1.27	1.65	1.86	1.85	1.72	1.77	1.80	1.63	1.42	1.20	1.81	1.44
4	1.40	1.60	1.90	1.81	1.77	1.76	1.74	1.65	1.38	1.18	1.46	1.27
5	1.22	1.55	1.73	1.83	1.83	1.83	1.63	1.85	1.13	1.40	1.19	
6	2.12	1.51	1.82	1.89	1.64	1.88	1.80	1.76	1.53	1.10	1.28	1.18
7	1.67	1.44	2.03	1.64	1.81	1.94	1.67	1.63	1.40	1.12	1.25	1.14
8	1.32	1.49	1.90	1.53	2.09	2.04	1.57	1.54	1.36	1.11	1.32	1.12
9	1.19	1.76	1.84	1.62	1.78	2.00	1.52	1.74	1.31	1.07	3.64	1.12
10	1.18	2.89	1.90	1.61	1.71	1.83	1.54	1.79	1.31	1.10	2.35	1.11
11	1.17	1.85	1.90	1.57	1.72	1.77	1.58	2.82	1.40	1.14	1.50	1.12
12	1.13	1.57	1.78	1.64	1.76	1.49	1.90	1.20	1.14	1.35	1.10	
13	1.22	1.57	1.99	1.60	1.60	1.77	1.45	1.74	1.24	1.09	1.25	1.08
14	1.14	1.54	2.41	2.76	1.72	1.85	1.53	1.63	1.25	1.07	1.45	1.15
15	1.19	1.58	2.28	2.21	2.07	2.00	1.44	2.15	1.57	1.07	1.98	1.14
16	1.15	4.12	1.86	1.58	2.62	1.80	1.45	1.94	1.32	1.08	1.33	1.16
17	1.45	4.47	1.69	2.16	2.10	1.74	1.48	1.69	1.26	1.47	1.25	1.12
18	1.37	3.56	1.68	2.07	3.37	1.71	1.43	1.71	1.30	1.18	2.04	1.12
19	1.30	2.37	1.62	4.20	2.68	1.95	1.41	1.66	2.27	1.22	1.52	2.91
20	1.56	2.16	1.68	4.49	2.20	1.87	1.45	1.57	1.71	1.12	1.39	1.86
21	1.36	2.07	2.88	2.05	1.82	3.68	1.52	1.42	1.18	1.38	1.58	
22	1.24	1.99	1.65	2.34	2.43	1.73	2.49	1.50	2.21	4.90	1.34	1.48
23	1.43	1.97	1.58	2.09	3.19	1.67	1.91	1.54	1.70	2.53	1.28	1.40
24	4.06	1.88	2.01	3.35	1.68	1.69	1.70	1.37	1.49	1.23	1.32	
25	2.36	1.94	3.05	1.86	3.75	1.61	1.64	1.82	1.30	1.30	1.23	1.28
26	1.65	2.46	2.25	1.50	2.46	1.65	1.90	1.72	1.23	1.23	1.90	1.26
27	1.53	2.19	4.67	1.83	2.23	1.64	2.22	1.55	1.18	1.21	1.57	1.23
28	1.49	1.85	4.52	3.22	1.59	1.75	1.47	1.17	1.20	1.20	1.55	1.24
29	1.44	3.12	2.31	2.30	1.59	1.74	1.45	1.20	1.27	1.27	1.42	1.22
30	1.78	1.96	2.14	1.66	1.46	1.88	1.54					

NOTE—Gage height Oct. 17, Dec. 5, 12, 22, 25, Jan. 2, May 1 and June 5 not observed. Stage-discharge relation Jan. 9-12 and 16-18 affected by ice.

*Daily discharge, in second-feet, of Brandywine Creek at Chadds Ford for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	774	680	442	385	524	314	360	263	223	680	545
2	210	404	482	420	367	482	349	367	253	203	1,210	332
3	203	332	404	404	349	367	385	332	253	180	385	260
4	246	314	422	385	367	367	367	332	239	174	266	203
5	187	297	380	567	367	404	332	404	360	158	246	177
6	502	280	385	422	332	422	385	367	297	148	206	174
7	332	260	482	332	385	442	332	332	246	154	196	161
8	220	277	422	297	502	482	297	297	233	151	220	154
9	177	367	404	260	385	461	280	367	216	140	1,210	154
10	174	868	422	240	349	404	297	385	216	148	612	151
11	170	404	422	240	349	367	314	821	246	161	280	154
12	158	297	420	260	332	367	277	422	180	161	230	148
13	187	297	461	314	314	367	263	367	193	145	196	142
14	161	297	634	821	349	404	297	332	196	140	263	164
15	177	314	589	545	482	461	260	524	297	140	461	161
16	164	1,470	404	240	727	385	263	442	220	142	223	167
17	120	1,690	349	240	502	367	273	349	200	270	196	154
18	263	727	270	300	612	367	270	332	190	177	680	154
19	236	1,210	349	482	1,110	349	256	349	213	174	482	4,270
20	213	612	314	1,530	774	442	249	332	567	187	280	568
21	297	524	349	1,690	545	404	263	297	349	154	243	404
22	233	482	340	868	482	385	1,260	280	253	174	239	314
23	193	461	332	612	657	367	680	280	545	1,920	226	273
24	256	442	314	502	1,010	332	422	297	349	680	206	246
25	1,470	422	240	461	1,110	349	349	349	236	277	190	220
26	612	442	915	404	1,310	314	332	385	213	213	190	206
27	332	657	567	280	657	332	422	349	190	190	422	200
28	297	545	1,800	404	567	332	545	297	174	183	297	190
29	277	404	1,690	1,010	314	367	270	270	170	180	297	193
30	260	962	589	589	314	367	263	180	208	253	187	
31	385	442	524	332	266	422	297					

NOTE—Discharge estimated Oct. 17, Dec. 5, 12, 22, 25, Jan. 2, May 1 and June 5, because of no gage height record, from weather records, study of gage height graph and comparison with discharge of adjacent streams, and Jan. 9-12 and 16-18, because of ice, from weather records, study of gage height graph and comparison with similar studies for Schuylkill River at Reading.

*Monthly discharge of Brandywine Creek at Chadds Ford for the year ending Sept. 30, 1927.*

(Drainage area 285 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,470	120	289	1.01	1.16
November	1,690	260	561	1.97	2.20
December	1,800	270	525	1.84	2.12
January	1,690	240	519	1.82	2.10
February	1,310	314	560	1.96	2.04
March	524	314	387	1.36	1.57
April	1,260	249	369	1.29	1.44
May	821	263	360	1.26	1.45
June	567	170	258	.905	1.01
July	1,920	140	257	.902	1.04
August	1,210	190	367	1.29	1.49
September	4,270	142	371	1.30	1.45
The Year	4,270	120	401	1.41	19.07



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SUSQUEHANNA BASIN

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## SUSQUEHANNA BASIN—STATION NO. 1

NORTH BRANCH SUSQUEHANNA RIVER AT  
BINGHAMTON, N. Y.

*Location.*—At four-span steel highway bridge, Washington Street, Binghamton, Broome County, about 500 feet upstream from mouth of Chenango River.

*Drainage Area.*—2,400 square miles.

*Records Available.*—July 31, 1901, to December 31, 1912, and January 23, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read to hundredths twice daily by C. F. Hand; during high stages more frequently. Elevation of gage zero 821.49 feet, United States Geological Survey datum.

*Discharge Measurements.*—Measurements were discontinued in 1912, as the stage-discharge relation is sometimes affected by backwater from the Chenango River.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of fine and coarse gravel.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 15.5 feet at 5 a. m. March 15; minimum, 1.99 feet at 5 p. m. July 13.

*Ice.*—Stage-discharge relation usually affected by ice.

*Flood Warning.*—Gage heights obtained at this station are for Flood Warning purposes.

*Daily Mean Gage Height, in feet, of North Branch Susquehanna River at Binghamton, N. Y., for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.73	6.10	4.78	2.97	6.30	4.42	4.30	3.44	4.18	2.38	2.39	2.85
2	2.62	5.29	4.34	2.96	5.50	4.20	4.10	3.30	3.84	2.34	3.01	4.47
3	2.50	4.95	3.68	2.84	4.92	3.83	4.08	3.15	3.51	2.30	2.48	4.79
4	2.50	4.51	3.26	2.85	5.14	3.61	4.26	3.08	3.38	2.25	2.37	3.95
5	2.50	4.10	3.08	2.93	5.24	3.61	4.14	3.16	3.31	2.21	2.32	3.30
6	5.10	3.82	2.94	2.93	4.51	3.50	4.02	3.03	3.30	2.17	2.30	2.96
7	6.52	3.72	3.31	2.82	4.19	3.60	4.65	2.96	3.30	2.15	2.24	2.73
8	5.67	3.57	3.28	2.92	4.03	6.07	4.28	2.85	3.12	2.19	2.22	2.66
9	4.48	3.48	3.46	3.03	3.79	8.48	3.92	2.83	2.95	2.19	2.19	2.53
10	4.00	5.10	3.48	3.32	3.64	7.36	3.62	3.08	2.73	2.15	2.28	2.50
11	3.98	5.20	3.36	3.40	3.56	7.06	3.45	3.82	2.69	2.11	2.44	2.43
12	4.15	4.42	3.33	3.34	3.54	8.22	3.38	3.96	2.65	2.18	2.28	2.45
13	3.69	3.88	3.29	3.45	3.45	10.02	3.19	3.63	2.60	2.09	2.26	2.96
14	3.55	3.46	3.31	3.04	3.14	13.60	3.13	3.32	2.59	2.05	2.24	2.86
15	3.58	3.62	3.60	3.34	3.06	15.00	3.06	4.08	2.55	2.07	2.36	2.65
16	3.44	7.40	4.11	3.28	3.14	13.02	2.93	3.82	2.52	2.08	2.28	2.52
17	3.25	14.02	4.00	3.39	3.35	10.27	2.88	3.74	2.44	2.08	2.18	2.48
18	3.30	11.10	3.40	3.03	4.13	8.80	2.97	3.56	2.38	2.18	2.12	2.43
19	3.46	9.93	3.94	2.78	4.45	9.22	3.11	3.63	2.34	2.23	2.23	2.42
20	3.43	9.04	3.76	3.02	4.30	8.72	3.00	3.58	2.40	2.20	2.20	2.36
21	4.40	7.38	3.24	4.13	3.75	9.61	2.88	3.34	2.42	2.16	2.15	2.33
22	4.21	6.26	3.32	5.95	3.46	10.59	4.35	3.18	2.39	2.12	2.10	2.37
23	3.91	5.56	3.32	7.00	3.67	9.11	4.26	3.32	2.40	2.22	2.08	2.35
24	3.75	5.04	3.28	6.95	4.53	7.47	4.00	9.80	2.40	2.31	2.10	2.30
25	4.70	4.66	3.07	5.89	4.90	6.44	3.67	11.83	2.38	2.32	2.05	2.25
26	6.45	4.40	3.06	4.90	5.95	5.73	3.41	10.15	2.54	2.23	2.13	2.20
27	5.88	4.38	3.34	4.23	5.70	5.40	4.81	8.52	2.56	2.29	2.16	2.22
28	4.93	4.39	3.30	3.87	4.95	5.30	4.99	6.91	2.54	2.31	2.18	2.18
29	4.31	4.08	2.99	3.76	-----	5.17	4.18	5.68	2.48	2.39	2.20	2.21
30	3.96	4.30	3.03	4.73	-----	4.74	3.72	5.03	2.43	2.39	2.68	2.20
31	4.50	-----	3.05	6.20	-----	4.52	-----	4.44	-----	2.36	3.06	-----

NOTE—Stage-discharge relation Dec. 19 to Jan. 21 affected by ice.

## SUSQUEHANNA BASIN—STATION NO. 2

## CHEMUNG RIVER AT CORNING, N. Y.

*Location.*—At four-span steel highway bridge, Bridge Street, Corning, Steuben County, about one and three-quarters miles downstream from confluence of Cohocton and Tioga Rivers.

*Drainage Area.*—1,940 square miles.

*Records Available.*—December 1, 1909, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read to tenths once daily by C. H. Voorhees, Jr.; during high stages more frequently. Elevation of gage zero 912.82 feet, United States Geological Survey datum.

*Channel and Control.*—River is outlined by dykes which confine the flow until a gage height 23.6 feet is reached. Bed is composed of gravel.



*Extremes of Stage.*—Maximum gage height during the year, 12.2 feet at 8 a. m. November 17; minimum, 2.1 feet from 8 a. m. September 24 to 8 a. m. September 30.

*Ice.*—Stage-discharge relation usually affected by ice.

*Flood Warning.*—Gage heights obtained at this station are for Flood Warning purposes.

*Daily Mean Gage Height, in feet, of Chemung River at Corning, N. Y., for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	6.0	4.3	3.2	5.6	4.6	4.1	4.0	4.5	2.7	4.1	2.5
2		5.0	4.0	3.2	5.0	4.3	4.3	3.9	4.1	2.5	3.8	2.5
3		4.6	3.4	3.2	4.8	4.1	4.3	3.7	3.9	2.5	3.8	2.5
4		4.3	3.3	3.2	5.7	3.9	4.8	4.1	3.7	2.5	3.6	2.4
5		4.0	3.3	3.2	5.1	3.8	5.9	6.1	3.6	2.5	3.0	2.4
6			3.9	3.3	3.2	5.0	4.3	7.3	4.9	4.0	2.5	2.3
7			3.8	3.3	3.2	4.9	5.3	7.5	4.4	3.6	2.4	2.3
8			3.7	3.4	3.2	4.3	8.9	6.1	4.2	3.4	2.4	2.3
9			4.1		3.2	4.2	7.3	5.4	4.5	3.4	2.4	2.3
10		5.1	3.5	3.2	4.0	6.4	4.8	6.5	3.2	2.4	2.7	2.3
11	3.2	4.4	3.5	3.2	4.0	6.4	4.6	5.4	3.1	2.4	2.6	2.3
12	3.2	3.8	3.4	3.2	3.7	7.3	4.4	4.9	3.0	2.4	2.5	2.3
13	3.1	3.6	3.4	3.2	3.6		4.2	4.5	3.0	2.4	2.5	2.2
14	3.1	3.6	3.4	3.2	3.6	9.1	4.0	4.3	3.0	2.4	2.5	2.2
15	3.0	3.6	3.4	3.2	3.8	8.3	4.0	4.6	3.0	2.5	2.5	2.2
16	3.0		3.6	3.2	3.9	6.8	3.7	4.4	2.9	2.4	2.6	2.2
17	2.9	10.2	3.7	3.2	6.3	6.2	3.6	4.4	2.9	2.4	2.5	2.2
18	2.9	7.3	3.6	3.2	6.9	6.3	3.7	4.2	2.8	2.7	2.5	2.2
19	2.9	9.0	3.5	3.2	5.5	6.7	3.6	4.1	2.8	2.6	2.4	2.2
20	2.9	6.6	3.4	3.3	4.8	6.3	3.5	4.7	3.1	2.4	2.4	2.2
21	3.0	5.9	3.4	5.2	3.9	9.9	3.5	4.2	3.3	2.4	2.5	2.2
22	3.1	5.4	3.3	6.7	3.7	8.8	3.6	4.2	3.1	2.4	2.6	2.2
23	3.3	5.1	3.3	7.0	5.5	6.9	4.5	4.5	3.0	2.7	2.4	2.2
24	3.5	4.8	3.3	6.0	6.7	6.1	4.0	9.2	2.8	2.7	2.5	2.1
25	5.2	4.5	3.2	5.0	7.5	5.5	3.9	8.7	2.7	2.8	2.4	2.1
26	5.5	4.2	3.2	4.5	7.1	5.2	3.9	7.9	2.8	2.7	2.4	2.1
27	5.2	4.1	3.2	3.7	5.5	5.8	5.6	7.1	2.7	2.6	2.4	2.1
28	4.9	4.0	3.2	3.7	5.1	5.5	5.7	6.3	2.9	2.6	2.4	2.1
29	4.1	3.9	3.2	4.2		5.0	4.7	5.4	2.7	2.7	2.4	2.1
30	3.6	4.2	3.2	5.5		4.7	4.3	5.0	2.7	3.0	2.5	2.1
31			3.2	7.3		4.5		4.8		3.4	2.5	

NOTE—Gage height Oct. 2-10, 31, Nov. 16, Dec. 9 and Mar. 13 not observed. Stage-discharge relation Dec. 5 to Jan. 22 affected by ice.

#### SUSQUEHANNA BASIN—STATION NO. 3

#### NORTH BRANCH SUSQUEHANNA RIVER AT TOWANDA

*Location.*—At four-span steel highway bridge, Bridge Street, Towanda, Bradford County.

*Drainage Area.*—7,700 square miles.

*Records Available.*—December 1, 1892, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Hiram E. Bull. Elevation of gage zero 693.4 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and rock. Control is at a riffle extending downstream from right end of bridge to island and from left side of island to left bank; changed during heavy ice flow of March, 1920.

*Extremes of Discharge.*—Maximum stage during the year, 16.6 feet observed at 5 p. m. November 17, (discharge, 116,000 second-feet); minimum, 0.50 foot from 6 p. m. August 26 to 6 p. m. August 27 (discharge, 1,230 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Two rating tables used; one applicable to Nov. 16 and the other subsequent to that date; rating curves fairly well defined between 800 and 20,000 second-feet and well defined from 20,000 to 167,000 second-feet. Gage read to half-tenths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of North Branch Susquehanna River at Towanda during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
35	Oct. 7	Geo. Weber	Feet 5.02	Sec.-ft. 17,100



Daily Mean Gage Height, in feet, of North Branch Susquehanna River at Towanda for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.53	5.60	4.52	3.75	6.70	4.65	4.00	3.55	4.05	1.25	1.33	1.77
2	2.33	5.40	4.35	3.80	5.80	4.10	3.90	3.20	3.65	1.15	1.90	1.85
3	2.20	4.82	3.65	4.15	5.08	3.80	3.75	2.95	3.25	1.05	2.07	2.95
4	2.10	4.40	3.15	3.90	5.25	3.30	4.05	2.80	2.95	1.00	1.63	2.95
5	2.05	3.90	2.95	3.85	5.00	3.15	4.65	3.10	2.83	.90	1.35	2.37
6	2.55	3.65	2.80	3.82	4.50	3.25	5.05	3.55	2.87	.93	1.15	1.90
7	4.75	3.45	4.35	3.95	4.15	3.50	5.85	3.08	2.77	.93	1.05	1.67
8	4.82	3.25	5.90	4.10	3.88	7.40	5.30	2.75	2.60	.85	1.00	1.45
9	3.80	3.12	5.75	3.75	3.60	10.00	4.50	3.05	2.37	.83	1.03	1.37
10	3.22	4.60	5.95	3.70	3.55	8.45	4.00	4.80	2.15	.85	.93	1.15
11	2.98	5.18	4.90	3.40	3.48	7.60	3.65	4.40	2.00	.80	.90	1.07
12	3.25	4.42	4.50	3.40	3.10	8.35	3.40	4.20	1.87	.80	1.05	.95
13	3.15	3.75	4.00	3.35	3.00	10.30	3.05	3.80	1.77	.73	1.00	1.05
14	2.80	3.45	3.85	3.45	2.85	12.90	2.95	3.42	1.75	.77	.93	1.50
15	2.70	3.25	3.40	3.00	2.75	14.40	2.75	3.75	1.63	.73	.83	1.37
16	2.68	7.00	3.30	2.75	2.82	12.90	2.55	4.12	1.60	.67	.80	1.17
17	2.58	15.70	2.90	2.95	3.50	10.50	2.45	3.95	1.53	.75	.85	1.07
18	2.50	13.00	3.45	3.30	5.70	8.50	2.50	3.65	1.43	.85	.80	1.05
19	2.60	11.55	3.65	3.35	5.65	8.75	2.50	3.65	1.35	.85	.70	.95
20	2.78	10.10	3.90	3.60	4.60	8.75	2.50	3.95	1.43	.90	.70	.85
21	3.50	7.80	5.30	4.92	3.82	11.00	2.50	3.60	1.70	.85	.70	.80
22	3.85	6.52	5.05	7.65	3.75	12.25	3.70	3.25	1.65	.80	.65	.85
23	3.50	5.55	4.80	7.45	3.85	9.80	4.70	3.10	1.60	.75	.65	.87
24	3.20	5.02	4.50	7.40	4.75	7.90	4.45	8.00	1.45	.83	.63	.75
25	3.50	4.52	4.40	6.40	5.80	6.55	3.80	13.85	1.43	1.00	.55	.70
26	5.90	4.30	4.50	5.55	6.60	5.70	3.50	11.55	1.45	1.20	.53	.65
27	5.80	4.15	4.60	4.20	6.60	5.25	4.40	9.45	1.50	1.15	.50	.60
28	4.78	4.25	4.45	3.45	5.40	5.10	5.50	7.70	1.65	1.03	.55	.55
29	4.10	3.88	4.25	3.52	-----	5.05	4.80	6.65	1.50	.95	.80	.55
30	3.70	3.80	4.05	4.50	-----	4.80	4.00	5.45	1.33	.97	.93	.55
31	3.80	-----	3.90	7.60	-----	4.45	-----	4.45	-----	1.25	1.55	-----

NOTE—Stage-discharge relation Dec. 5-13 and Dec. 18 to Jan. 22 affected by ice.

Daily discharge, in second-feet, of North Branch Susquehanna River at Towanda for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,870	23,300	16,500	4,400	30,200	17,100	13,600	11,800	13,600	2,370	2,580	3,600
2	5,250	22,000	15,900	4,400	24,500	14,200	13,000	9,900	11,800	2,180	4,060	3,900
3	4,670	18,300	11,800	4,400	20,100	12,600	12,600	8,860	9,900	2,000	4,750	8,860
4	4,310	15,900	9,900	4,400	20,700	10,400	13,600	7,860	8,860	1,920	3,310	8,860
5	4,140	13,000	7,500	4,200	19,500	9,900	17,100	9,380	7,860	1,760	2,580	5,970
6	6,300	11,800	6,000	4,000	16,500	9,900	19,500	11,800	8,340	1,840	2,180	4,060
7	18,300	11,000	6,000	4,000	14,700	11,400	24,500	9,380	7,860	1,840	2,000	3,310
8	18,300	9,220	6,000	4,000	13,000	34,800	21,300	7,860	6,880	1,680	1,920	2,800
9	12,500	8,690	5,500	4,000	11,500	53,500	16,500	8,860	5,970	1,680	2,000	2,580
10	9,220	17,100	5,500	4,000	11,800	41,700	13,600	18,300	5,140	1,680	1,840	2,180
11	8,160	20,700	5,500	3,800	11,400	36,100	11,800	15,900	4,390	1,610	1,760	2,000
12	9,220	15,900	5,500	3,800	9,380	41,700	11,000	14,700	3,900	1,610	2,000	1,840
13	9,220	12,500	7,000	3,600	8,860	55,800	8,860	12,600	3,600	1,540	1,920	2,000
14	7,200	11,000	11,000	3,400	7,860	76,800	8,860	11,000	3,600	1,540	1,840	2,920
15	6,730	9,220	11,000	3,400	7,860	91,000	7,860	12,600	3,310	1,540	1,680	2,580
16	6,730	32,200	10,400	3,400	7,860	76,800	6,880	14,200	3,170	1,410	1,610	2,180
17	6,300	105,000	8,340	3,400	11,400	57,300	5,970	13,600	3,040	1,540	1,680	2,000
18	5,870	77,600	6,000	3,400	23,900	42,400	6,410	11,800	2,800	1,680	1,610	2,000
19	6,300	66,000	6,000	3,400	23,300	44,600	6,410	11,800	2,580	1,680	1,470	1,840
20	7,200	54,300	5,500	3,400	17,100	44,600	6,410	13,600	2,800	1,760	1,470	1,680
21	10,800	37,500	5,500	3,800	12,600	61,200	6,410	11,800	3,450	1,680	1,470	1,610
22	12,500	28,900	6,000	4,800	12,600	70,900	12,200	9,900	3,310	1,610	1,410	1,680
23	10,800	23,300	6,000	34,800	12,600	52,000	17,700	9,380	3,170	1,540	1,410	1,680
24	9,220	19,500	6,000	34,300	18,300	38,200	15,900	38,900	2,800	1,680	1,410	1,540
25	10,800	16,500	6,000	28,300	24,500	29,600	12,600	85,000	2,800	1,920	1,290	1,470
26	25,100	15,300	5,500	23,300	29,600	23,900	11,400	66,000	2,800	2,270	1,290	1,410
27	24,500	14,700	5,000	14,700	29,600	20,700	15,900	49,000	2,920	2,180	1,230	1,350
28	18,300	14,700	5,000	11,000	22,000	20,100	22,600	36,800	3,310	2,000	1,290	1,290
29	14,200	13,000	5,900	11,400	-----	19,500	18,300	29,600	2,920	1,840	1,610	1,290
30	11,900	12,600	5,000	16,500	-----	18,300	13,600	22,000	2,580	1,840	1,840	1,290
31	12,500	-----	4,800	36,100	-----	15,900	-----	15,900	-----	2,370	3,040	-----

NOTE—Discharge Dec. 5-13 and Dec. 18 to Jan. 22 estimated, because of ice, from weather records, study of gage height graph and from discharge of North Branch Susquehanna River at Conklin, Chenango River at Chenango Forks, Chemung River at Chemung and North Branch Susquehanna River at Danville.

Monthly discharge of North Branch Susquehanna River at Towanda for the year ending Sept. 30, 1927.

(Drainage area 7,770 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	25,100	4,140	10,400	1.34	1.54
November	105,000	8,690	25,000	3.22	3.59
December	16,500	4,800	7,310	.942	1.09
January	36,100	3,400	9,560	1.23	1.42
February	30,200	7,860	16,900	2.18	2.27
March	91,000	9,900	37,200	4.79	5.52
April	24,500	6,410	13,100	1.69	1.89
May	85,000	7,860	19,700	2.54	2.93
June	13,600	2,580	4,960	.641	.72
July	2,370	1,410	1,800	.232	.27
August	4,750	1,230	1,980	.255	.29
September	8,860	1,290	2,730	.351	.39
The Year	105,000	1,230	12,500	1.61	21.92

#### SUSQUEHANNA BASIN—STATION NO. 4

#### TOWANDA CREEK NEAR MONROETON

*Location.*—At single-span steel highway bridge about one and a half miles southwest of Monroeton, Bradford County.

*Drainage Area.*—218 square miles.

*Records Available.*—January 30, 1914, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Leon D. Pepper.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Neither bank is subject to overflow. Bed is composed of coarse gravel. Control consists of the foundation timbers of an old wooden dam and a gravel bar which probably shifts.

*Extremes of Discharge.*—Maximum stage during the year estimated from hydrograph, 11.0 feet at 3 p. m. November 16 (discharge, about 22,000 second-feet); minimum discharge 16 second-feet at 7 a. m. September 30, when the gage height was higher than at 5 p. m. October 4, due to a change in stage-discharge relation on November 17, 1926.

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected



by ice. Two rating tables used; one applicable to November 16, well defined below 500 second-feet; the other applicable subsequent to November 16, fairly well defined below 300 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Discharge measurements of Towanda Creek near Monroeton during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
35	Oct. 7	J. M. Snavely	Feet	Sec.-ft.
36	Oct. 7	do	3.02	409
			3.00	410

*Daily Mean Gage Height, in feet, of Towanda Creek near Monroeton for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.38	3.56	3.45	3.05	3.62	3.36	3.14	3.36	3.15	2.61	2.71	2.63
2	2.24	3.36	3.34	3.06	3.42	3.32	3.14	3.29	3.04	2.58	2.92	2.68
3	2.21	3.12	3.31	3.08	3.41	3.27	3.17	3.22	2.99	2.58	2.73	2.75
4	2.14	2.92	3.29	3.06	3.52	3.24	3.23	3.22	2.97	2.56	2.64	2.63
5	3.18	2.82	3.32	2.95	3.33	3.16	3.31	3.26	3.16	2.53	2.57	2.61
6	3.05	2.72	3.61	2.92	3.24	3.20	3.34	3.15	3.04	2.50	2.52	2.54
7	2.80	2.62	3.55	2.88	3.18	3.90	3.38	3.08	2.92	2.66	2.48	2.51
8	2.74	2.54	3.55	2.91	3.14	5.25	3.20	3.04	2.88	2.75	2.47	2.49
9	2.61	2.95	3.49	2.97	3.10	4.28	3.20	3.08	2.84	2.63	2.51	2.47
10	2.48	4.03	3.47	3.05	3.12	3.87	3.18	3.22	2.80	2.57	2.49	2.47
11	2.82	3.32	3.49	3.02	3.10	3.85	3.12	3.40	2.77	2.54	2.45	2.45
12	2.54	3.08	3.42	3.02	3.07	4.10	3.08	3.24	2.74	2.53	2.43	2.45
13	2.44	2.90	3.23	3.04	3.09	5.09	3.04	3.16	2.72	2.52	2.39	2.43
14	2.40	2.82	3.31	3.01	3.10	5.82	3.00	3.15	2.74	2.48	2.63	2.45
15	2.31	2.72	3.28	3.02	3.04	4.60	2.96	3.32	2.82	2.45	2.79	2.43
16	2.31	7.30	3.05	3.04	3.06	4.08	2.94	3.24	2.72	2.47	2.64	2.41
17	2.36	5.75	3.08	3.08	3.48	3.95	2.93	3.20	2.68	2.47	2.55	2.43
18	2.35	4.60	3.04	3.06	4.05	3.98	2.90	3.16	2.65	2.44	2.57	2.39
19	2.45	6.00	3.06	3.05	3.62	3.92	2.88	3.18	2.71	2.41	2.62	2.41
20	2.52	4.95	3.15	3.65	-----	3.90	2.86	3.19	3.40	2.42	2.58	2.40
21	3.06	4.03	3.19	4.30	-----	4.58	2.84	3.11	3.05	2.42	2.59	2.37
22	2.78	3.80	3.19	5.88	-----	4.08	4.90	3.04	2.89	2.44	2.55	2.38
23	2.64	3.60	3.10	4.42	3.52	3.69	3.93	3.05	2.81	2.51	2.51	2.39
24	2.55	3.54	3.08	3.90	3.78	3.56	3.58	3.78	2.76	2.47	2.51	2.37
25	3.90	3.44	3.00	3.72	3.84	3.44	3.48	3.91	2.73	2.45	2.47	2.36
26	3.58	3.39	3.03	3.55	4.10	3.37	3.64	3.64	2.88	2.41	2.45	2.35
27	3.20	3.60	3.00	3.65	3.66	3.36	4.02	3.78	2.82	2.44	2.45	2.35
28	2.95	3.36	3.15	3.72	3.46	3.29	4.00	3.58	2.73	2.71	2.47	2.37
29	2.82	3.28	3.10	3.75	-----	3.27	3.72	3.40	2.70	2.64	2.89	2.35
30	2.75	3.61	3.10	4.00	-----	3.23	3.50	3.29	2.64	2.66	2.85	2.33
31	3.80	-----	3.01	4.00	-----	3.19	-----	3.22	-----	2.65	2.75	-----

NOTE—Stage-discharge relation Dec. 3-20, Dec. 28 to Jan. 4, Jan. 9-22 and 27-29 affected by ice. Gage height Feb. 20-22 unsatisfactory.

*Daily discharge, in second-feet, of Towanda Creek near Monroeton for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	110	850	548	200	705	464	298	464	305	58	87	63
2	80	662	446	190	519	428	298	403	234	52	170	77
3	74	465	340	180	510	389	319	354	205	52	94	102
4	63	343	300	180	595	368	361	354	195	48	66	63
5	540	282	280	185	437	312	419	382	312	43	50	58
6	430	226	240	170	368	340	446	305	234	38	41	45
7	270	183	220	152	326	1,090	482	258	170	72	35	40
8	237	156	200	165	298	3,560	340	234	152	102	34	37
9	179	362	200	140	270	1,710	340	258	136	63	40	34
10	137	1,480	200	140	284	1,020	326	354	120	50	37	34
11	282	620	260	130	270	1,020	284	500	109	45	31	31
12	156	465	300	120	252	1,390	258	368	98	43	23	31
13	126	330	300	120	264	3,320	234	312	90	41	23	28
14	115	282	280	120	270	5,130	210	305	98	35	63	31
15	93	226	240	120	234	2,240	190	428	128	31	116	28
16	93	9,800	200	120	246	1,390	180	368	90	34	66	25
17	105	5,130	190	120	576	1,160	175	340	77	34	46	28
18	108	2,240	180	120	1,320	1,240	160	312	69	30	50	23
19	129	5,760	200	140	705	1,090	152	326	87	25	61	25
20	149	2,980	280	280	500	1,090	144	333	500	27	52	24
21	430	1,320	333	1,200	460	2,240	136	277	240	27	53	21
22	259	950	333	2,000	500	1,390	2,870	234	156	30	46	22
23	191	705	270	1,900	595	820	1,160	240	124	40	40	23
24	159	650	258	1,090	950	650	705	950	105	34	40	21
25	1,260	538	210	820	1,020	538	576	1,090	94	31	34	20
26	900	491	228	650	1,390	473	762	762	152	25	31	19
27	540	705	210	400	762	464	1,240	950	128	30	31	19
28	362	464	200	460	557	403	1,240	705	94	87	34	21
29	282	396	200	460	-----	389	820	500	83	66	156	19
30	242	705	200	1,240	-----	361	595	403	66	72	140	17
31	1,120	-----	200	1,240	-----	333	-----	354	-----	69	102	-----

NOTE—Discharge estimated Dec. 3-20, Dec. 28 to Jan. 4, Jan. 9-22 and 27-29, because of ice, and Feb. 20-22, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with similar studies for Lackawanna River at Moosic, Fishing Creek at Bloomsburg, Lycoming Creek near Trout Run and Loyalsock Creek at Loyalsock.

*Monthly discharge of Towanda Creek near Monroeton for the year ending Sept. 30, 1927.*

(Drainage area 218 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,260	63	297	1.36	1.57
November	9,800	156	1,330	6.10	6.81
December	548	180	260	1.19	1.37
January	2,000	120	469	2.15	2.48
February	1,390	234	542	2.49	2.59
March	5,130	312	1,190	5.46	6.30
April	2,870	136	524	2.40	2.68
May	1,090	234	433	1.99	2.29
June	500	66	155	.711	.79
July	102	25	46.3	.212	.24
August	170	23	61.2	.281	.32
September	102	17	34.3	.157	.18
The Year	9,800	17	443	2.03	27.62



## SUSQUEHANNA BASIN—STATION NO. 5

## TUNKHANNOCK CREEK AT DIXON

*Location.*—At single-span steel highway bridge, about two miles east of Tunkhannock, at Dixon, Wyoming County.

*Drainage Area.*—393 square miles.

*Records Available.*—January 28, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Mrs. Almina Kneller and Mrs. Bertha Dixon.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—The right bank is high, steep, and does not overflow; the left is low but not subject to overflow. Bed is composed of coarse gravel. Control is at a riffle, where the bed is composed of boulders, about 300 feet downstream from the gage; permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 11.2 feet at 5 a. m. October 6 (discharge, about 14,100 second-feet); minimum, 1.20 feet at 5 p. m. August 16 and September 28 (discharge, 37 second-feet).

*Ice.*—Stage discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 30 and 4,000 second-feet. Gage read to half-tenths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of Tunkhannock Creek at Dixon during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
39	Oct. 8	J. M. Snavely	4.07	1,770
40	Sept. 29a	do	1.41	65.6

a Measurement made by wading 700 feet upstream from gage.

*Daily Mean Gage Height, in feet, of Tunkhannock Creek at Dixon for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.15	3.48	2.75	2.02	3.40	3.28	2.62	2.65	3.10	1.88	2.80	2.90
2	2.00	2.90	2.50	1.98	3.28	3.00	2.50	2.48	2.62	1.68	3.05	4.65
3	1.95	2.75	2.15	2.02	3.35	2.85	2.62	2.42	2.48	1.48	2.48	3.65
4	1.90	2.62	2.35	2.00	3.90	2.75	2.52	2.42	2.50	1.62	2.42	3.10
5	2.13	2.52	2.00	2.00	3.08	2.55	2.68	2.40	2.62	1.52	2.12	2.75
6	9.14	2.42	2.00	1.98	3.05	2.60	2.80	2.32	2.52	1.62	1.90	2.60
7	5.30	2.35	2.35	2.00	2.85	2.85	2.70	2.25	2.42	1.72	1.82	2.40
8	4.05	2.30	2.45	1.92	2.60	4.55	2.65	2.25	2.25	1.70	1.65	2.32
9	3.50	2.20	2.40	1.92	2.62	4.35	2.62	2.68	2.18	1.42	1.72	2.15
10	3.08	4.40	2.25	2.00	2.58	3.95	2.68	3.75	2.02	1.45	1.62	1.92
11	3.05	3.35	2.25	1.98	2.60	3.95	2.42	4.50	2.00	1.48	1.55	1.98
12	2.75	2.90	2.15	1.92	2.48	4.20	2.20	3.68	1.90	1.42	1.42	2.00
13	2.70	2.75	2.20	1.90	2.22	4.60	2.20	3.30	1.85	1.42	1.42	1.95
14	2.62	2.70	2.50	2.00	2.20	5.90	2.18	3.62	1.92	1.32	1.45	1.90
15	2.62	2.65	2.40	2.00	2.30	5.10	2.10	4.20	2.02	1.40	1.32	2.02
16	2.50	5.88	2.25	1.98	2.30	4.20	2.05	3.50	1.88	1.38	1.22	2.15
17	2.42	7.15	2.00	2.02	2.85	3.85	-----	3.45	1.92	1.38	1.42	2.28
18	2.50	5.15	2.00	2.05	4.30	3.68	-----	3.48	1.75	1.42	1.90	1.90
19	2.62	5.88	2.15	1.95	3.70	3.60	-----	3.45	1.72	1.48	2.00	1.62
20	2.80	4.50	2.20	2.15	3.30	4.40	1.92	3.38	1.75	1.40	1.95	1.68
21	3.80	3.90	2.20	3.80	3.10	6.12	1.97	2.98	1.65	1.45	1.82	1.55
22	3.43	3.55	2.08	5.45	3.12	5.05	3.00	2.90	1.55	1.70	1.70	1.48
23	2.85	3.32	2.20	5.00	3.12	4.10	2.90	3.00	1.48	1.95	1.60	1.52
24	2.79	3.10	2.12	4.10	3.65	3.75	2.70	5.00	1.48	1.90	1.52	1.55
25	4.91	2.90	2.10	3.28	4.15	3.42	2.48	5.45	1.58	1.95	1.60	1.42
26	4.51	2.85	1.95	3.05	4.85	3.22	2.52	5.40	2.67	1.88	1.72	1.38
27	3.65	3.10	1.98	2.60	4.00	3.20	3.60	5.10	2.20	2.02	1.55	1.30
28	3.30	2.65	2.18	2.72	3.58	3.18	3.35	4.18	1.85	1.98	2.22	1.22
29	3.15	2.55	2.20	3.10	-----	3.00	2.95	3.50	1.78	2.05	4.10	1.35
30	3.05	2.85	2.00	3.62	-----	2.78	2.82	3.20	1.62	2.45	3.40	1.40
31	3.20	-----	2.05	3.95	-----	2.48	-----	3.08	-----	2.32	2.80	-----

NOTE—Stage-discharge relation Dec. 6-9 and Jan. 5-21 affected by ice. Gage height Apr. 17-19 not observed.

*Daily discharge, in second-feet, of Tunkhannock Creek at Dixon for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	320	1,230	665	250	1,150	1,070	570	600	910	200	700	770
2	250	770	510	242	1,070	840	510	570	570	130	840	2,340
3	229	665	320	250	1,110	735	570	450	510	81	510	1,320
4	208	570	422	250	1,600	665	510	450	510	113	450	910
5	320	510	250	220	910	540	630	450	570	90	295	665
6	9,450	450	220	220	875	570	700	395	510	113	208	570
7	3,170	422	200	200	735	735	630	370	450	142	177	450
8	1,700	395	200	200	570	2,340	600	370	370	135	122	395
9	1,230	345	280	190	570	2,120	570	630	345	69	142	320
10	910	2,120	370	170	570	1,700	630	1,500	250	75	113	216
11	875	1,110	370	160	570	1,700	450	2,230	250	81	96	242
12	665	770	320	150	510	1,900	345	1,410	208	69	69	250
13	630	665	345	140	345	2,340	345	1,070	188	69	69	229
14	570	630	510	140	345	3,990	345	1,320	216	52	75	208
15	570	600	450	140	395	2,920	295	1,900	250	65	52	250
16	510	3,990	370	130	395	1,900	272	1,230	200	62	39	320
17	450	5,970	250	120	735	1,500	260	1,190	216	62	69	395
18	510	3,040	250	120	2,010	1,410	260	1,230	152	69	208	208
19	570	3,990	320	140	1,410	1,320	220	1,190	142	81	250	113
20	700	2,230	345	190	1,070	2,120	216	1,150	152	65	229	130
21	1,500	1,600	345	700	910	4,270	237	840	122	75	177	96
22	1,190	1,320	295	3,300	910	2,800	840	770	96	135	135	81
23	735	1,070	345	2,800	910	1,800	770	840	81	229	108	90
24	700	910	295	1,800	1,320	1,500	630	2,800	81	208	90	96
25	2,680	770	295	1,070	1,900	1,150	510	3,300	103	229	108	69
26	2,230	735	229	875	2,560	990	510	3,300	600	200	142	62
27	1,320	910	242	570	1,700	990	1,320	2,920	345	250	96	49
28	1,070	600	345	630	1,320	990	1,110	1,900	188	242	345	39
29	950	540	345	910	-----	840	805	1,230	162	272	1,800	57
30	875	735	250	1,320	-----	700	700	990	113	480	1,150	65
31	990	-----	272	1,700	-----	510	-----	910	-----	395	700	-----

NOTE—Discharge estimated Dec. 6-9 and Jan. 5-21, because of ice, from weather records, study of gage height graph and comparison with similar studies for Towanda Creek near Monroeton, Lackawanna River at Moosic, Fishing Creek at Bloomsburg, Lackawanna River near West Hawley and Bushkill Creek near Shoemakers, and Apr. 17-19, because of no gage height record, from weather records, study of gage height graph and comparison with discharge at other stations.



Monthly discharge of Tunkhannock Creek at Dixon for the year ending Sept. 30, 1927.

(Drainage area 393 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	9,450	208	1,230	3.13	3.61
November	5,970	345	1,320	3.36	3.75
December	665	200	330	.840	.97
January	3,300	120	622	1.58	1.82
February	2,560	345	1,020	2.60	2.71
March	4,270	510	1,580	4.02	4.64
April	1,320	216	545	1.39	1.55
May	3,300	370	1,270	3.23	3.72
June	910	81	295	.751	.84
July	480	52	146	.372	.43
August	1,800	39	309	.786	.91
September	2,340	39	367	.934	1.04
The Year	9,450	39	752	1.91	25.99

#### SUSQUEHANNA BASIN—STATION NO. 6

#### LACKAWANNA RIVER AT MOOSIC

*Location.*—At single-span steel highway bridge, River Street or Moosic Road, Moosic, Lackawanna County.

*Drainage Area.*—265 square miles.

*Records Available.*—August 8, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Mrs. Margaret Ross.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of culm and rocks. Control for low stages is at a slight riffle about 50 feet downstream from the gage; for medium and high stages at a pronounced riffle about 1,000 feet downstream; occasionally shifting.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.0 feet at 10 p. m. November 16 (discharge, about 8,400 second-feet); minimum, 1.90 feet at 8 a. m. September 28 (discharge, 151 second-feet).

*Ice.*—Stage-discharge relation rarely affected by ice.

*Accuracy.*—Stage-discharge relation probably permanent. Rating curve fairly well defined between 100 and 4,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

Discharge measurements of Lackawanna River at Moosic during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
44	Oct. 6	J. M. Snavelly	Feet 4.12	Sec.-ft. 1,540
45	Sept. 30	do	2.09	177

Daily Mean Gage Height, in feet, of Lackawanna River at Moosic for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.23	3.02	2.92	2.32	3.06	3.11	2.88	2.86	3.15	2.36	2.54	2.75
2	2.23	2.86	2.84	2.31	3.00	2.97	2.88	2.83	2.98	2.32	2.98	4.10
3	2.14	2.89	2.50	2.31	3.05	2.90	2.82	2.77	2.86	2.30	2.56	3.70
4	2.16	2.81	2.70	2.33	3.20	2.81	2.83	2.73	2.85	2.23	2.40	3.09
5	2.10	2.75	2.55	2.32	2.96	2.78	2.81	2.76	2.98	2.20	2.30	2.85
6	3.39	2.69	2.53	2.28	2.94	2.81	2.91	2.67	2.95	2.18	2.26	-----
7	3.52	2.63	2.49	2.21	2.87	2.96	3.03	2.61	2.79	2.28	2.22	-----
8	2.89	2.61	2.45	2.08	2.78	3.66	2.85	2.45	2.72	2.33	2.22	-----
9	2.67	2.84	2.64	2.11	2.78	3.84	2.76	2.62	2.64	2.20	2.21	-----
10	2.58	3.72	2.59	2.08	2.77	3.70	2.74	3.10	2.58	2.11	2.12	-----
11	2.63	3.13	2.53	2.17	2.71	3.75	2.68	3.48	2.56	2.04	2.06	-----
12	2.50	2.88	2.46	2.17	2.63	3.92	2.56	3.35	2.52	2.10	1.99	-----
13	2.52	2.82	2.51	2.20	2.56	4.38	2.52	3.10	2.54	2.04	1.99	2.26
14	2.56	2.75	2.57	2.30	2.56	4.82	2.58	2.91	2.46	2.04	2.45	2.21
15	2.47	2.83	2.57	2.21	2.55	4.70	2.56	3.06	2.50	2.04	2.85	2.21
16	2.42	5.35	2.48	2.14	2.57	4.18	2.52	3.12	2.39	2.10	2.50	2.17
17	2.49	6.29	2.38	2.20	2.90	3.80	2.47	3.15	2.38	2.02	2.38	2.15
18	2.50	4.67	2.27	2.23	3.40	3.70	2.44	3.14	2.32	2.03	2.46	2.12
19	2.48	5.02	2.31	2.23	3.38	3.85	2.42	3.22	2.40	1.99	2.32	2.36
20	2.57	4.29	2.38	2.47	3.05	3.88	2.50	3.16	2.57	1.96	2.29	2.11
21	2.91	3.88	2.44	3.30	2.91	4.71	2.44	2.84	2.48	1.97	2.22	2.04
22	2.73	3.55	2.47	4.00	2.96	4.45	2.95	2.83	2.38	2.23	2.11	2.08
23	2.65	3.41	2.40	4.02	3.09	3.92	3.04	3.20	2.35	2.75	2.06	1.99
24	2.69	3.25	2.30	3.54	3.45	3.64	2.84	4.38	2.36	2.36	2.06	1.96
25	3.80	3.09	2.29	3.29	3.68	3.44	2.80	4.60	2.26	2.22	2.05	1.97
26	3.55	2.96	2.35	3.15	3.85	3.27	2.88	4.60	3.00	2.11	2.04	1.99
27	3.17	3.33	2.33	2.90	3.55	3.18	3.16	4.35	2.77	2.20	2.22	1.93
28	2.99	2.99	2.42	2.84	3.28	3.10	3.34	3.90	2.55	2.11	2.21	1.91
29	2.87	2.81	2.45	2.95	-----	3.08	3.09	3.60	2.43	2.12	2.53	1.96
30	2.78	2.97	2.36	3.19	-----	2.99	2.99	3.40	2.36	2.25	2.65	1.95
31	3.00	-----	2.28	3.25	-----	2.91	-----	3.29	-----	2.26	2.45	-----

NOTE—Gage height Sept. 6-12 not observed.



Daily discharge, in second-feet, of Lackawanna River at Moosic for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	278	719	648	318	757	795	648	615	836	337	434	551
2	278	615	615	314	719	684	648	615	719	318	719	1,700
3	240	648	462	314	757	648	582	551	615	309	434	1,320
4	249	582	520	323	876	582	615	551	615	278	356	795
5	224	551	434	318	684	582	582	551	719	265	309	615
6	1,050	520	434	300	684	582	648	491	684	257	291	500
7	1,140	491	402	269	615	684	757	462	582	300	274	460
8	648	462	382	216	582	1,320	615	382	520	323	274	440
9	491	615	491	228	582	1,410	551	462	491	265	269	400
10	462	1,320	462	216	551	1,320	551	795	462	228	232	360
11	491	836	434	253	520	1,410	520	1,140	434	201	209	340
12	407	648	387	253	491	1,500	434	1,010	407	224	182	300
13	407	582	407	265	434	2,000	407	795	434	201	182	291
14	434	551	434	309	434	2,460	462	648	387	201	382	269
15	392	615	434	269	434	2,340	434	757	407	201	615	269
16	366	3,300	397	240	434	1,800	407	795	351	224	407	253
17	402	4,800	347	265	648	1,410	392	836	347	194	347	244
18	407	2,340	296	278	1,050	1,320	376	836	318	197	387	232
19	397	2,720	314	278	1,050	1,410	366	876	356	182	318	337
20	434	1,900	347	392	757	1,500	407	836	434	172	305	228
21	648	1,500	376	961	648	2,340	376	615	397	176	274	201
22	551	1,230	392	1,600	684	2,000	684	615	347	278	228	216
23	491	1,050	356	1,600	795	1,500	757	876	332	551	209	182
24	520	918	309	1,140	1,100	1,230	615	2,000	337	337	209	172
25	1,410	795	305	961	1,320	1,100	582	2,220	296	274	205	176
26	1,230	684	332	836	1,410	918	648	2,220	719	228	201	182
27	836	1,010	323	648	1,230	876	836	2,000	551	265	274	162
28	719	719	366	615	961	795	1,010	1,500	434	228	269	154
29	615	582	382	684	-----	795	795	1,230	371	232	434	172
30	582	684	337	876	-----	719	719	1,050	337	287	491	168
31	719	-----	300	918	-----	648	-----	961	-----	201	382	-----

NOTE—Discharge Sept. 6-12 estimated, because of no gage height record, from weather records, study of gage height graph and comparison with discharge at stations in adjacent drainage basins.

Monthly discharge of Lackawanna River at Moosic for the year ending Sept. 30, 1927.

(Drainage area 265 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in Inches
October	1,410	224	565	2.13	2.46
November	4,800	462	1,130	4.26	4.75
December	648	296	401	1.51	1.74
January	1,600	216	531	2.00	2.31
February	1,410	434	757	2.86	2.98
March	2,460	582	1,250	4.72	5.44
April	1,010	366	581	2.19	2.44
May	2,220	382	945	3.57	4.12
June	836	296	475	1.79	2.00
July	551	172	259	.977	1.13
August	719	182	326	1.23	1.42
September	1,700	154	390	1.47	1.64
The Year	4,800	154	633	2.39	32.43

# SUSQUEHANNA BASIN—STATION NO. 7

## NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE

*Location.*—At four-span steel highway bridge, Market Street, Wilkes-Barre, Luzerne County.

*Drainage Area.*—9,960 square miles.

*Records Available.*—November 1, 1890, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Milton Wentz. Elevation of gage zero 511.03 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge, except during extremely high stages when they are taken from the Port Bowkley Railroad bridge, where the entire discharge of the stream is confined to one channel.

*Channel and Control.*—Right bank is low and subject to overflow at a stage of about 18.5 feet; left bank subject to overflow only at extremely high stages. Bed is composed of culm, sand and gravel. Control for low stages is at a riffle about 4,000 feet downstream from the gage; occasionally shifting. For high stages the control is probably the dam at Nanticoke, 9 miles downstream from the gage.

*Extremes of Discharge.*—Maximum stage during the year, 22.73 feet observed at noon November 17 (discharge, 121,000 second-feet); minimum, 1.89 feet on September 30 (discharge, 1,700 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Gage read to hundredths once daily; during high stages more frequently.

Daily discharge until January 14 ascertained by applying to rating table daily mean gage height, computed from a continuous daily hydrograph, obtained by plotting gage readings. Rating curve well defined between 1,300 and 160,000 second-feet. Results good.

Beginning with January 14, daily discharge was estimated from the record for North Branch Susquehanna River at Towanda and Danville, due to the construction of the new Market Street Bridge. The elevation of the bridge, to which the gage was attached, did not remain constant and the stage-discharge relation frequently changed due to construction work. Results fair.



Daily Mean Gage Height, in feet, of North Branch Susquehanna River at Wilkes-Barre for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.09	8.70	7.20	4.14	11.70	9.00	7.50	7.70	7.90	3.30	3.00	3.20
2	4.81	9.50	7.80	4.04	10.25	8.10	7.32	6.50	7.20	3.10	3.58	4.50
3	4.45	8.70	7.20	4.00	9.41	7.30	7.14	6.10	6.70	2.99	4.20	5.40
4	4.21	8.05	6.60	3.90	9.00	6.80	7.10	5.81	6.22	2.80	4.30	5.61
5	4.02	7.45	6.14	4.14	9.03	6.17	7.60	5.69	5.88	2.68	3.65	5.30
6	7.54	7.00	5.60	4.10	8.78	6.08	8.30	5.80	5.70	2.63	3.20	4.90
7	8.39	6.71	5.90	4.10	7.90	6.50	9.20	5.84	5.59	2.44	3.07	4.30
8	8.64	6.30	5.20	3.90	7.20	8.60	9.60	5.61	5.30	2.42	2.90	3.82
9	7.99	6.10	5.10	3.62	6.90	14.95	8.50	5.48	5.00	2.42	2.45	3.40
10	6.91	7.40	5.50	3.43	6.61	14.45	7.90	7.40	4.70	2.37	2.43	3.10
11	6.29	8.75	5.71	3.40	6.54	12.80	7.00	9.30	4.40	2.33	2.48	2.94
12	5.92	8.40	5.64	3.30	6.20	12.60	6.50	8.10	4.11	2.30	2.36	2.72
13	5.92	7.60	5.51	3.10	5.74	14.08	6.10	7.70	3.92	2.27	2.28	2.68
14	5.99	6.84	5.64	3.12	5.51	16.80	5.91	7.10	3.68	2.24	2.34	2.60
15	5.50	6.47	5.68	3.31	5.47	19.70	5.60	7.37	3.60	2.22	2.67	2.60
16	5.18	6.90	5.83	3.53	5.33	19.60	5.30	7.90	3.52	2.18	2.80	3.10
17	5.07	20.00	5.60	3.63	5.80	16.90	5.09	8.00	3.39	2.14	2.56	2.84
18	5.02	21.75	4.90	3.54	7.50	14.50	4.94	7.50	3.31	2.12	2.52	2.67
19	4.94	18.80	4.29	3.50	11.35	13.10	4.88	7.38	3.26	2.10	2.50	2.58
20	5.25	17.05	3.74	4.00	10.21	13.55	4.90	7.30	3.33	2.10	2.43	2.66
21	6.00	14.34	3.95	4.90	7.90	14.80	4.90	7.38	3.31	2.20	2.31	2.38
22	6.60	12.20	4.40	8.90	7.00	17.40	5.35	7.03	3.44	2.40	2.24	2.22
23	6.90	10.50	4.68	13.90	7.10	16.50	8.55	6.28	3.53	2.83	2.12	2.18
24	6.81	9.50	4.54	12.40	8.20	13.60	8.33	8.60	3.40	2.74	2.09	2.14
25	7.10	8.60	4.37	10.70	10.00	11.70	7.60	17.75	3.26	2.60	2.01	2.12
26	9.10	8.20	4.24	9.70	11.40	10.30	6.90	18.90	3.47	2.46	1.92	2.09
27	10.00	7.91	4.12	8.10	11.10	9.31	7.10	16.30	3.80	2.66	2.00	2.02
28	9.10	7.64	3.93	7.00	10.10	8.94	8.90	13.90	3.50	2.93	2.09	1.94
29	8.00	7.50	4.00	6.95	-----	8.81	9.40	11.74	3.44	2.82	2.50	1.91
30	7.33	7.24	4.22	7.90	-----	8.40	8.40	9.80	3.40	2.68	3.40	1.89
31	7.48	-----	4.17	10.40	-----	7.90	-----	8.60	-----	2.70	3.20	-----

NOTE—Stage-discharge relation affected Dec. 7 and 8 by ice and Jan. 14 to Sept. 30 by the construction of new Market Street Bridge.

Daily discharge, in second-feet, of North Branch Susquehanna River at Wilkes-Barre for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,630	23,600	17,000	5,420	38,000	28,000	18,000	22,000	24,000	3,600	3,000	4,400
2	7,580	27,200	19,600	5,150	34,000	22,000	16,000	20,000	22,000	3,600	3,400	5,200
3	6,290	23,600	17,000	5,150	28,000	17,000	15,000	17,000	18,000	3,600	3,800	8,000
4	5,700	20,400	14,500	4,890	24,000	15,000	15,000	14,000	15,000	3,600	4,800	11,000
5	5,150	17,800	12,500	5,420	22,000	14,000	17,000	10,000	13,000	3,400	5,500	11,000
6	18,200	16,100	10,500	5,420	20,000	13,000	20,000	12,000	12,000	3,400	4,600	9,000
7	26,100	14,900	8,500	5,420	13,000	14,000	24,000	13,000	11,000	3,400	4,000	7,000
8	23,200	13,300	8,500	4,890	17,000	30,000	26,000	10,000	10,000	3,200	3,400	5,500
9	20,400	12,500	8,630	4,150	15,000	60,000	22,000	10,000	9,500	3,200	3,000	5,000
10	15,700	17,800	10,100	3,700	14,000	60,000	22,000	13,000	9,000	3,000	2,600	4,600
11	13,300	24,000	10,900	3,700	13,000	46,000	19,000	22,000	8,000	3,000	2,600	3,200
12	11,700	22,200	10,500	3,480	12,000	44,000	17,000	20,000	7,500	2,800	2,600	3,000
13	11,700	18,700	10,100	3,060	11,000	60,000	15,000	18,000	7,000	2,800	2,400	2,600
14	12,100	15,300	10,500	3,500	10,000	85,000	13,000	16,000	6,000	2,600	2,600	2,400
15	10,100	14,100	10,900	3,500	10,000	90,000	11,000	16,000	5,500	2,600	2,800	2,400
16	9,000	15,700	11,300	3,500	11,000	90,000	10,000	19,000	5,000	2,400	3,000	3,600
17	8,630	95,400	10,500	3,500	15,000	65,000	9,000	20,000	4,600	2,400	3,000	3,400
18	8,270	112,000	7,920	3,000	22,000	50,000	8,500	19,000	4,000	2,400	3,000	3,200
19	7,920	84,900	5,990	3,500	28,000	50,000	7,500	18,000	3,400	2,200	3,000	2,600
20	9,000	70,000	4,390	4,500	26,000	55,000	8,000	18,000	3,600	2,200	2,800	2,800
21	12,100	51,500	5,150	7,000	19,000	60,000	8,000	18,000	3,600	2,400	2,800	2,600
22	14,500	40,500	6,290	20,000	17,000	80,000	11,000	16,000	3,600	2,400	2,800	2,400
23	15,700	32,000	7,250	48,000	16,000	75,000	22,000	15,000	4,000	2,600	2,800	2,200
24	15,300	27,200	6,600	46,000	18,000	55,000	20,000	28,000	3,600	2,400	2,600	2,200
25	16,500	23,200	6,290	32,000	22,000	40,000	18,000	70,000	3,400	2,400	2,600	2,000
26	25,400	21,400	5,700	24,000	40,000	30,000	16,000	100,000	3,600	2,600	2,600	1,800
27	20,600	20,000	5,420	20,000	34,000	28,000	17,000	80,000	4,000	2,600	3,000	1,800
28	25,400	18,700	4,890	16,000	30,000	26,000	22,000	60,000	3,800	2,600	3,200	1,800
29	20,400	18,200	5,150	14,000	-----	24,000	28,000	40,000	3,800	2,800	3,400	1,700
30	17,400	17,000	5,700	18,000	-----	22,000	24,000	30,000	3,800	3,000	3,800	1,700
31	18,200	-----	5,700	26,000	-----	20,000	-----	28,000	-----	3,000	4,000	-----

NOTE—Discharge estimated Dec. 7 and 8, because of ice, and Jan. 14 to Sept. 30, due to construction of new Market Street Bridge, from weather records, study of gage height graph and discharge of North Branch Susquehanna River at Towanda and Danville.

Monthly discharge of North Branch Susquehanna River at Wilkes-Barre for the year ending Sept. 30, 1927.

(Drainage area 9,960 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	29,600	5,150	14,500	1.46	1.63
November	112,000	12,500	31,000	3.11	3.47
December	19,600	4,390	9,160	.920	1.06
January	48,000	3,000	11,500	1.15	1.33
February	40,000	10,000	20,900	2.10	2.19
March	90,000	13,000	44,100	4.43	5.11
April	28,000	7,500	16,600	1.67	1.86
May	100,000	10,000	26,200	2.63	3.03
June	24,000	3,400	7,840	.787	.88
July	3,600	2,200	2,850	.286	.33
August	5,500	2,400	3,210	.322	.37
September	11,000	1,800	4,000	.402	.45
The Year	112,000	1,800	16,000	1.61	21.76

#### SUSQUEHANNA BASIN—STATION NO. 8

#### WAPWALLOPEN CREEK NEAR WAPWALLOPEN

*Location.*—At single-span steel highway bridge, known as Harts Bridge, three and one-half miles southeast of Wapwallopen, Luzerne County, and three and one-half miles upstream from mouth of creek.

*Drainage Area.*—46 square miles.

*Records Available.*—October 24, 1919, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Calvin P. Readler.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Left bank is high and not subject to overflow; right is of medium height and becomes inundated during extremely high stages. Bed is composed of gravel and boulders. Control is at a riffle about 1,000 feet downstream from the gage, where bed is composed of a compact formation of coarse gravel and boulders; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.6 feet at 3 p. m. November 16 (discharge, 2,070 second-feet); minimum 0.80 foot at 5.15 p. m. September 15, 6.30 a. m. September 17 and 7 a. m. September 27 and 28 (discharge, 3.6 second-feet).



*Ice.*—Stage-discharge relation usually affected by ice.

*Regulation.*—The operation of grist mills upstream from the station may cause variation in stage during low flows. There is very little storage at the mill dam one and one-half miles upstream from the gage; at the dam three and one-half miles upstream from the gage there is some storage and flow during part of day, at time of low water, can probably be stored.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined between 4 and 300 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for extremely high stages when they are fair.

*Discharge measurements of Wapwallopen Creek near Wapwallopen during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
20	Oct. 5a	J. M. Snively	1.22	21.2
21	5a	do	1.22	23.5
22	Aug. 9b	do	1.07	11.6

a Measurement made by wading 50 feet upstream from gage.

b Measurement made by wading 15 feet upstream from gage.

*Daily Mean Gage Height, in feet, of Wapwallopen Creek near Wapwallopen for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.37	2.09	1.94	1.85	2.68	1.93	1.80	1.97	1.93	1.61	1.32	1.16
2	1.31	1.98	1.88	1.85	2.10	1.86	1.98	1.88	1.75	1.48	1.27	1.34
3	1.27	1.87	1.83	1.82	2.16	1.92	1.88	1.85	1.70	1.43	1.17	1.29
4	1.25	1.81	1.71	1.76	2.16	1.85	1.81	1.79	1.82	1.36	1.08	1.19
5	1.27	1.75	1.98	1.66	2.01	1.93	1.73	1.82	2.12	1.29	1.01	1.08
6	1.67	1.71	2.06	1.57	1.83	1.90	1.79	1.70	1.90	1.27	1.01	1.07
7	1.64	1.65	1.96	1.50	1.93	1.89	1.69	1.62	1.69	1.30	1.11	1.03
8	1.52	1.62	1.89	1.60	1.96	2.43	1.64	1.57	1.65	1.60	1.10	1.02
9	1.46	1.92	1.84	1.61	1.84	2.32	1.58	1.41	1.60	1.33	1.04	.96
10	1.48	3.22	1.78	1.73	1.75	2.21	1.57	1.65	1.56	1.33	1.03	.88
11	1.79	2.50	1.69	1.63	1.72	2.12	1.55	1.96	1.55	1.31	.96	.98
12	1.55	2.22	1.58	1.65	1.68	2.12	1.49	1.69	1.48	1.23	.98	1.00
13	1.56	2.12	1.56	1.63	1.71	2.18	1.54	1.62	1.45	1.24	-----	.91
14	1.52	2.04	1.74	1.72	1.59	2.47	1.43	1.73	1.65	1.09	-----	.87
15	1.46	2.15	1.90	1.85	1.55	2.37	1.41	2.60	1.66	1.25	-----	.82
16	1.43	5.45	1.91	1.76	1.54	2.20	1.45	2.08	1.48	1.18	-----	.83
17	1.51	5.10	1.95	1.74	1.85	2.12	1.46	2.02	1.38	1.18	1.10	.81
18	1.65	4.00	1.74	1.70	2.09	2.09	1.43	2.00	1.28	1.15	1.22	.88
19	1.64	3.68	1.74	1.93	1.87	2.28	1.43	2.84	1.48	1.12	1.17	1.02
20	1.71	3.32	1.91	2.42	1.90	2.42	1.40	2.50	1.68	1.10	1.11	1.02
21	1.92	2.95	2.08	3.05	1.97	3.07	1.40	2.26	1.49	1.08	1.10	.98
22	1.79	2.72	2.01	3.15	1.84	2.79	2.28	2.14	1.38	1.04	1.04	.94
23	1.66	2.53	1.96	-----	1.96	2.51	2.13	2.07	1.52	1.78	1.01	.87
24	1.62	2.31	1.93	-----	2.10	2.35	1.80	2.56	1.52	1.45	1.01	.89
25	2.26	2.16	1.90	2.76	2.37	2.18	1.72	2.62	1.60	1.21	.96	.87
26	2.09	2.17	1.83	2.56	2.95	2.12	1.73	2.77	2.58	1.16	.86	.83
27	1.94	2.17	1.85	2.62	2.30	2.08	2.27	2.56	2.01	1.10	1.08	.82
28	1.86	1.97	2.07	2.79	2.09	1.96	2.60	2.37	1.78	1.12	1.30	.82
29	1.76	1.88	2.24	3.34	-----	1.96	2.21	2.21	1.64	1.04	1.71	.84
30	1.62	1.93	2.09	3.16	-----	1.91	2.07	2.08	1.55	.95	1.42	.85
31	2.17	-----	1.92	3.15	-----	1.93	-----	2.01	-----	1.48	1.35	-----

NOTE—Stage-discharge relation Dec. 5-11 and Dec. 17 to Jan. 31 affected by ice. Gage height Aug. 13-16 not observed.

*Daily discharge, in second-feet, of Wapwallopen Creek near Wapwallopen for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	108	88	42	202	87	71	91	87	51	26	16
2	25	93	81	42	108	78	93	81	66	39	22	27
3	22	79	75	38	115	85	81	77	50	35	16	23
4	21	72	61	36	115	77	72	70	73	29	12	17
5	22	66	55	36	95	87	63	73	108	23	8.8	12
6	57	61	50	36	75	83	70	60	83	22	8.8	11
7	54	55	48	34	87	82	59	52	59	24	13	9.6
8	43	52	46	32	90	159	54	47	55	50	12	9.2
9	37	85	42	32	76	136	48	33	50	26	10	7.3
10	39	300	44	32	66	122	47	55	46	26	9.6	5.2
11	70	167	46	32	62	108	46	90	46	25	7.3	7.8
12	46	122	48	30	58	108	40	59	39	20	7.8	8.4
13	46	108	46	28	61	122	45	52	36	20	7.0	5.9
14	43	102	64	26	49	159	35	63	55	12	24	5.0
15	37	115	83	24	46	144	33	184	56	21	55	4.0
16	35	995	84	24	45	122	36	108	39	17	32	4.2
17	42	880	60	22	77	115	37	95	30	17	12	3.8
18	55	510	46	24	108	108	35	95	23	15	20	5.2
19	54	425	42	32	79	136	35	230	39	14	16	9.2
20	61	325	42	70	83	151	32	167	58	12	13	9.2
21	85	250	48	240	91	280	32	129	40	12	12	7.8
22	70	202	55	280	76	221	136	115	30	10	10	6.7
23	56	176	55	200	90	167	115	102	43	69	8.8	5.0
24	52	136	50	130	108	144	71	176	43	36	8.8	5.4
25	129	115	50	95	144	122	62	184	50	19	7.3	5.0
26	108	115	50	85	250	108	63	212	184	16	4.8	4.2
27	88	115	48	90	136	108	129	176	95	12	12	4.0
28	78	91	46	100	108	90	184	144	69	14	24	4.0
29	67	81	44	150	-----	90	122	122	54	10	61	4.4
30	52	87	42	200	-----	84	102	108	46	7.0	34	4.6
31	115	-----	42	220	-----	87	-----	95	-----	39	28	-----

NOTE—Discharge estimated Dec. 5-11 and Dec. 17 to Jan. 31, because of ice, from weather records, study of gage height graph and comparison with similar studies for Tunkhannock Creek at Dixon, Lackawanna River at Moosie and Fishing Creek at Bloomsburg, and Aug. 13-16, because of no gage height record, from weather records, study of gage height graph and comparison with discharge of Lackawanna River at Moosie.

*Monthly discharge of Wapwallopen Creek near Wapwallopen for the year ending Sept. 30, 1927.*

(Drainage area 46 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	129	21	56.1	1.22	1.41
November	995	52	203	4.41	4.92
December	88	42	54.2	1.18	1.36
January	280	22	79.4	1.73	1.99
February	250	45	96.4	2.10	2.19
March	280	77	122	2.65	3.06
April	184	32	68.2	1.48	1.65
May	230	33	108	2.35	2.71
June	184	23	58.7	1.28	1.43
July	69	7.0	23.9	.520	.60
August	61	4.8	17.5	.380	.44
September	27	3.8	8.37	.182	.20
The Year	995	3.8	74.3	1.62	21.96



## SUSQUEHANNA BASIN—STATION NO. 9

## NESCOPECK CREEK NEAR ST. JOHNS

*Location.*—At single-span steel highway bridge, the first above the Wilkes-Barre & Hazleton Railway bridge, near St. Johns, Luzerne County.

*Drainage Area.*—49 square miles.

*Records Available.*—July 13, 1916, to October 5, 1926, when the station was discontinued.

*Gage.*—Standard chain attached to downstream side of bridge. John Klinger, observer. Elevation of gage zero 1,116.47 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and boulders. Control consists of boulders 50 feet downstream from the gage; permanent.

*Extremes of Discharge.*—Maximum stage during the period July 13, 1916, to October 5, 1926, estimated from hydrograph, 8.0 feet at midnight March 13-14, 1920 (discharge, about 2,540 second-feet); minimum, 0.97 foot at 7 a. m. July 8, 1925 (discharge, 5.4 second-feet).

*Ice.*—Stage-discharge relation seriously affected by ice.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined below 100 second-feet and fairly well defined between 100 and 600 second-feet. Gage supposed to have been read to hundredths twice daily. Daily mean gage heights were computed from a continuous daily hydrograph, using as many of the observer's gage heights as appeared authentic in connection with graphs for Wapwallopen Creek near Wapwallopen. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for estimated period when they are fair.

## Daily Mean Gage Height, in feet, of Nescopeck Creek near St. Johns for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												
2												
3												
4												
5	1.46											
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												

NOTE—Gage height Oct. 1-4 unsatisfactory. Station discontinued Oct. 5, 1926.

## Daily discharge, in second-feet, of Nescopeck Creek near St. Johns for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36											
2	32											
3	28											
4	24											
5	22											
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												

NOTE—Discharge Oct. 1-4 estimated, because of unsatisfactory gage height record, from discharge of Wapwallopen Creek near Wapwallopen. Station discontinued Oct. 5, 1926.



Monthly discharge of Nescopeck Creek near St. Johns for the year ending Sept. 30, 1927.

(Drainage area 49 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October (1-5) -----	36	22	28.4	0.580	0.11
November -----					
December -----					
January -----					
February -----					
March -----					
April -----					
May -----					
June -----					
July -----					
August -----					
September -----					
The Year -----					

NOTE—Station discontinued October 5, 1926.

#### SUSQUEHANNA BASIN—STATION NO. 10

#### FISHING CREEK AT BLOOMSBURG

*Location.*—At single-span wooden covered, highway bridge, known as Red Rock Bridge, Bloomsburg, Columbia County.

*Drainage Area.*—355 square miles.

*Records Available.*—January 27, 1914, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by L. Norman Cox. Elevation of gage zero 462.56 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of sand and gravel. Control is at a riffle, where the bed is composed of gravel, about 700 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 15.6 feet at midnight November 16-17 (discharge, about 21,500 second-feet); minimum, 2.60 feet at 5.30 p. m. September 11, 6.45 a. m. September 16 and 6.40 a. m. September 30 (discharge, 63 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,200 second-feet and fairly well defined between 1,200 and 2,600 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they are fair.

Discharge measurements of Fishing Creek at Bloomsburg during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
28	Oct. 5a	Geo. Weber	Feet	Sec.-ft.
29	5b	J. M. Shavely	3.52	373
30	Aug. 9c	do	3.50	355
31	10d	do	3.03	198
			2.98	120

a Measurement made by wading 1,000 feet upstream from gage.

b Measurement made by wading 800 feet downstream from gage.

c Measurement made from concrete highway bridge about 4,000 feet downstream from gage.

d Measurement made by wading 300 feet downstream from gage.

Daily Mean Gage Height, in feet, of Fishing Creek at Bloomsburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1 -----	4.06	4.30	4.12	3.29	4.59	4.61	4.02	4.74	4.40	3.46	3.46	3.18
2 -----	3.88	4.16	3.96	3.37	4.70	4.49	4.06	4.48	4.16	3.31	3.45	3.05
3 -----	3.75	4.00	3.78	3.29	4.85	4.26	4.12	4.28	4.05	3.30	3.30	2.95
4 -----	3.52	3.86	3.62	3.28	5.12	4.24	4.08	4.22	4.84	3.29	3.26	3.02
5 -----	3.40	3.79	3.54	3.40	4.62	4.14	4.12	4.24	4.76	3.20	3.08	2.92
6 -----	7.03	3.73	3.50	3.23	4.28	4.44	4.22	4.03	4.25	3.19	3.14	2.96
7 -----	6.20	3.66	3.56	3.26	4.19	4.75	4.33	3.82	3.99	3.30	3.12	2.96
8 -----	5.14	3.60	3.52	3.28	4.06	6.30	4.24	3.78	3.88	3.49	3.24	2.93
9 -----	4.58	3.95	3.72	3.21	4.08	6.35	4.19	3.71	3.72	3.18	2.90	2.82
10 -----	4.40	6.25	3.68	3.29	4.14	5.85	4.10	3.90	3.69	3.12	3.04	2.72
11 -----	4.42	5.35	3.59	3.29	4.24	5.74	3.99	4.10	3.62	3.18	3.09	2.70
12 -----	4.08	4.70	3.68	3.16	3.99	5.80	3.88	3.76	3.58	3.16	3.04	2.72
13 -----	3.96	4.35	3.72	3.23	3.94	6.60	3.82	3.72	3.44	3.01	3.00	2.88
14 -----	4.15	4.18	3.62	3.20	3.91	7.68	3.78	3.90	3.58	3.00	3.10	2.74
15 -----	3.85	4.02	3.55	3.16	3.94	7.50	3.64	5.20	3.65	2.90	3.72	2.83
16 -----	3.69	8.50	3.78	3.31	3.91	6.50	3.60	4.90	3.42	3.02	3.14	2.80
17 -----	3.61	11.80	3.66	3.42	4.34	6.05	3.49	4.68	3.29	3.04	2.92	2.74
18 -----	3.80	7.71	3.36	3.38	6.00	6.02	3.48	4.55	3.24	2.89	3.11	2.78
19 -----	4.00	8.52	3.46	3.41	5.65	6.15	3.44	5.68	3.42	2.80	3.05	2.95
20 -----	4.35	7.11	3.48	4.15	4.95	6.60	3.49	6.17	4.30	2.82	3.09	2.98
21 -----	4.86	5.88	3.51	5.80	4.72	8.33	3.44	5.58	3.95	2.92	3.12	2.94
22 -----	4.65	5.05	3.50	6.15	4.51	7.70	5.05	4.80	3.64	2.77	2.94	2.84
23 -----	4.42	4.82	3.34	6.30	4.32	6.45	5.40	4.65	3.58	4.55	2.99	2.84
24 -----	4.12	4.70	3.32	5.60	4.71	5.70	4.76	5.38	3.65	3.92	2.92	2.86
25 -----	6.62	4.56	3.31	4.85	5.10	5.15	4.55	6.10	3.55	3.45	2.89	2.75
26 -----	6.55	4.50	3.36	4.52	6.40	4.88	4.35	6.95	4.85	3.31	2.82	2.75
27 -----	5.56	4.46	3.22	4.11	5.35	4.67	5.32	6.60	4.11	3.24	2.83	2.81
28 -----	4.96	4.28	3.34	4.04	4.92	4.56	6.30	5.90	3.86	3.25	2.93	2.77
29 -----	4.64	4.10	3.30	4.50	-----	4.35	5.66	5.44	3.69	3.24	2.98	2.88
30 -----	4.44	4.22	3.28	5.16	-----	4.18	5.04	4.88	3.58	2.95	3.08	2.80
31 -----	4.40	-----	3.34	5.28	-----	4.12	-----	4.59	-----	3.21	3.29	-----

NOTE—Stage-discharge relation Dec. 7-10, 16, 17 and Jan. 7-19 affected by ice.



Daily discharge, in second-feet, of Fishing Creek at Bloomsburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	622	760	649	277	945	945	596	1,010	822	338	338	239
2	544	676	570	297	1,010	885	622	885	676	277	338	184
3	470	596	494	277	1,070	732	649	760	622	277	277	151
4	358	519	400	277	1,280	732	649	703	1,070	277	258	167
5	317	494	397	317	945	676	649	732	1,070	239	202	141
6	3,060	470	358	258	760	854	703	622	732	239	220	154
7	2,210	423	340	240	703	1,070	791	494	596	277	202	154
8	1,280	400	320	220	622	2,320	732	494	544	358	258	145
9	945	570	340	200	649	2,420	703	446	446	239	135	113
10	822	2,210	360	200	676	1,850	649	544	446	202	184	88
11	822	1,510	400	189	732	1,760	596	649	400	239	202	83
12	649	1,010	446	170	596	1,850	544	470	400	220	184	88
13	570	791	446	170	570	2,620	494	446	338	167	167	129
14	676	703	400	160	544	3,950	494	544	400	167	202	93
15	519	596	397	150	570	3,680	423	1,360	423	135	446	115
16	446	5,080	240	140	544	2,520	400	1,130	317	167	220	107
17	400	11,300	320	140	791	2,040	358	1,010	277	184	141	93
18	494	3,950	297	150	2,040	2,040	358	945	258	132	202	102
19	596	5,080	338	180	1,680	2,210	338	1,760	317	107	184	151
20	791	3,180	358	676	1,200	2,620	358	2,210	760	113	202	161
21	1,130	1,930	358	1,850	1,010	4,780	338	1,680	570	141	202	148
22	945	1,200	358	2,210	885	3,950	1,200	1,070	423	100	148	118
23	822	1,070	297	2,320	760	2,420	1,510	945	400	945	164	118
24	649	1,010	277	1,680	1,010	1,760	1,070	1,510	423	544	141	124
25	2,620	945	277	1,070	1,280	1,360	945	2,120	397	338	132	95
26	2,620	885	297	885	2,420	1,130	791	3,060	1,070	277	113	95
27	1,680	854	239	649	1,510	1,010	1,440	2,620	649	258	115	110
28	1,200	760	297	622	1,130	945	2,320	1,930	519	258	145	100
29	945	649	277	885	-----	791	1,760	1,510	446	258	161	129
30	854	703	277	1,360	-----	703	1,200	1,130	400	151	202	107
31	822	-----	297	1,440	-----	649	-----	945	-----	239	277	-----

NOTE—Discharge Dec. 7-10, 16, 17 and Jan. 7-19 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Towanda Creek near Monroeton, Lackawanna River at Moosic, Loysock Creek at Loysock and Susquehanna River at Harrisburg.

Monthly discharge of Fishing Creek at Bloomsburg for the year ending Sept. 30, 1927.  
(Drainage area 355 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	3,060	317	996	2.81	3.24
November	11,300	400	1,680	4.73	5.28
December	649	239	362	1.02	1.18
January	2,320	140	634	1.79	2.06
February	2,420	544	998	2.81	2.93
March	4,780	649	1,850	5.21	6.01
April	2,320	338	789	2.22	2.48
May	3,060	446	1,150	3.24	3.74
June	1,070	258	540	1.52	1.70
July	945	100	254	.716	.83
August	446	113	205	.577	.66
September	239	83	127	.358	.40
The Year	11,300	83	797	2.24	30.51

SUSQUEHANNA BASIN—STATION NO. 11

## NORTH BRANCH SUSQUEHANNA RIVER AT DANVILLE

*Location.*—At seven-span steel highway bridge between South Danville and Danville, Montour County.

*Drainage Area.*—11,200 square miles.

*Records Available.*—March 25, 1899, to December 31, 1903, and March 23, 1905, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by E. F. Bell. Elevation of gage zero 430.47 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Left bank is high and not subject to overflow; right bank subject to overflow at extremely high stages. Bed is composed of gravel and rock. Control is at a riffle a short distance downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 18.8 feet at 6 p. m. November 17 (discharge, 142,000 second-feet); minimum, 2.4 feet from 3 p. m. September 29 to 3 p. m. September 30 (discharge, 2,270 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 800 and 150,000 second-feet. Gage read to tenths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of North Branch Susquehanna River at Danville during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
70	Oct. 4	J. M. Snively & Geo. Weber	Feet 3.90	Sec.-ft. 7,440



Daily Mean Gage Height, in feet, of North Branch Susquehanna River at Danville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	6.25	5.95	3.75	9.4	8.2	6.5	6.65	7.05	-----	3.0	3.3
2	4.4	7.65	6.2	3.85	8.9	7.3	6.2	6.05	6.6	-----	3.2	3.3
3	4.15	7.75	6.3	3.85	8.1	6.4	6.05	5.5	6.0	-----	3.4	4.25
4	3.85	7.1	5.8	3.6	7.75	6.15	5.85	5.4	5.6	-----	3.6	4.6
5	3.6	6.65	5.05	3.6	7.6	5.75	5.95	5.05	5.65	-----	3.75	5.0
6	4.8	6.1	4.85	3.75	7.1	5.7	6.45	5.0	5.25	-----	3.4	4.6
7	8.3	5.75	4.2	3.85	6.95	5.7	6.95	4.95	4.95	-----	3.1	4.05
8	7.55	5.45	3.8	3.6	6.35	6.5	7.45	4.85	4.85	3.0	3.0	3.68
9	7.05	5.25	3.9	3.45	6.05	10.8	7.55	4.75	4.65	2.95	2.9	3.42
10	6.5	6.1	4.75	3.3	5.85	12.6	6.65	4.85	4.45	2.85	2.78	3.32
11	5.7	7.5	4.8	3.35	5.65	11.2	6.15	7.2	4.15	2.7	2.7	3.08
12	5.3	7.6	4.95	2.85	5.4	10.4	5.65	7.2	4.0	2.7	2.7	2.95
13	5.0	6.95	4.75	3.15	5.25	11.2	5.35	6.6	3.85	2.7	2.65	2.9
14	5.2	6.2	4.7	3.35	4.95	13.2	5.05	6.2	3.75	2.6	2.68	2.82
15	5.0	5.7	4.8	3.4	4.8	15.2	4.8	6.35	3.7	2.6	3.1	2.75
16	4.65	9.0	4.55	5.5	4.65	16.05	4.65	6.9	3.55	2.6	3.12	2.9
17	4.4	17.7	4.75	5.95	4.7	14.8	4.5	7.0	3.5	2.65	2.98	3.02
18	4.4	18.2	4.65	6.15	6.0	12.85	4.35	6.6	3.35	2.6	2.8	2.95
19	4.45	16.45	4.35	6.3	8.6	11.15	4.2	6.75	3.35	2.6	2.7	2.8
20	4.45	14.85	3.75	6.7	8.35	11.3	4.2	7.05	3.55	2.6	2.72	2.85
21	4.75	12.95	3.55	8.1	7.3	12.2	4.1	6.8	3.55	2.6	2.75	2.72
22	5.45	11.0	3.65	7.1	6.45	14.2	4.5	6.35	3.4	2.6	2.62	2.68
23	5.85	9.45	4.0	11.65	6.0	14.45	5.7	5.95	3.45	3.45	2.5	2.6
24	5.75	8.35	4.15	10.9	6.3	12.3	7.3	6.1	-----	3.4	2.5	2.58
25	6.15	7.7	4.0	9.6	7.65	10.55	6.85	11.2	-----	3.15	2.55	2.52
26	7.35	7.1	4.05	8.55	9.6	9.15	6.25	15.85	-----	2.85	2.5	2.5
27	8.3	6.75	4.15	7.4	10.0	8.2	6.15	14.55	-----	2.9	2.5	2.5
28	8.3	6.5	3.75	6.5	9.25	7.65	7.3	12.65	-----	2.95	2.58	2.5
29	7.45	6.4	3.7	6.05	-----	7.4	8.35	10.6	-----	3.05	2.6	2.42
30	6.6	6.2	3.75	6.3	-----	7.2	7.75	9.0	-----	2.9	2.92	2.4
31	6.3	-----	3.9	6.9	-----	6.9	-----	7.85	-----	3.0	3.45	-----

NOTE—Stage-discharge relation Dec. 10-12, 17-20, Dec. 30 to Jan. 3, 6-11 and Jan. 13-21 affected by ice. Gage height June 24 to July 7 not observed.

Daily discharge, in second-feet, of Susquehanna River at Danville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,700	18,900	17,800	6,000	40,800	31,700	20,600	21,200	23,600	4,600	3,980	5,000
2	9,730	27,500	18,900	6,000	36,900	25,500	18,900	17,800	21,200	4,600	4,640	5,000
3	8,780	28,900	19,400	6,000	31,000	20,000	17,800	15,100	17,800	4,400	5,380	8,780
4	7,000	24,200	16,700	6,170	28,900	18,900	16,700	14,600	15,600	4,400	6,170	10,700
5	6,170	21,200	12,600	6,170	27,500	16,700	17,800	12,600	15,600	4,000	7,000	12,600
6	11,600	18,300	11,600	6,000	24,200	16,100	20,000	12,600	13,600	4,000	5,380	16,700
7	32,500	16,700	8,780	6,000	23,600	16,100	23,600	12,600	4,000	4,300	7,870	7,870
8	27,500	14,600	7,000	5,500	20,000	20,600	26,200	11,600	11,600	3,980	3,980	6,580
9	23,600	13,600	7,430	4,500	17,800	52,700	27,500	11,600	10,700	3,820	3,670	5,380
10	20,600	18,300	8,500	4,500	16,700	69,400	21,200	11,600	9,730	3,520	3,370	5,000
11	16,100	26,900	9,500	4,000	15,600	56,300	18,900	24,900	8,780	3,080	3,080	4,300
12	14,100	27,500	11,000	3,520	14,600	49,200	15,600	24,900	7,870	3,080	3,080	3,820
13	12,600	23,600	11,600	3,400	13,600	56,300	14,600	21,200	7,000	3,080	2,940	3,670
14	13,600	18,900	11,200	3,200	12,600	75,600	12,600	18,900	7,000	2,800	3,080	3,370
15	12,600	16,100	11,600	3,000	11,600	97,600	11,600	20,000	6,580	2,800	4,300	3,220
16	10,700	37,700	10,700	3,000	10,700	107,000	10,700	23,000	6,170	2,800	4,300	3,670
17	9,730	128,000	9,500	3,200	11,200	93,000	10,200	23,600	5,770	2,940	3,980	3,980
18	9,730	134,000	8,500	3,400	17,800	71,500	9,730	21,200	5,380	2,800	3,370	3,820
19	9,730	112,000	7,500	3,600	34,600	56,300	8,780	22,400	5,380	2,800	3,080	3,370
20	9,730	93,000	6,500	4,400	33,200	57,200	8,780	23,600	6,170	2,800	3,080	3,520
21	11,600	73,500	6,170	9,600	25,500	65,500	8,320	22,400	6,170	2,800	3,220	3,080
22	14,600	54,500	6,170	24,200	20,000	86,300	10,200	20,000	5,380	2,800	2,800	3,080
23	16,700	40,800	7,870	59,900	17,800	88,500	16,100	17,800	5,380	5,380	2,530	2,800
24	16,700	33,200	8,780	53,600	19,400	66,500	25,500	18,300	6,000	5,380	2,530	2,800
25	18,900	28,200	7,870	42,500	27,500	51,000	22,400	56,300	4,600	4,640	2,660	2,530
26	26,200	24,200	7,870	34,600	42,500	39,200	18,900	105,000	5,000	3,520	2,530	2,530
27	32,500	22,400	8,780	26,200	45,800	31,700	18,900	90,800	7,000	3,670	2,530	2,530
28	32,500	20,600	7,000	20,600	39,200	27,500	25,500	69,400	6,000	3,820	2,800	2,530
29	26,200	20,000	6,580	17,800	-----	26,200	33,200	51,000	5,000	3,980	2,800	2,270
30	21,200	18,900	6,500	19,400	-----	24,900	28,900	37,700	4,600	3,670	3,670	2,270
31	19,400	-----	6,500	23,000	-----	23,000	-----	-----	-----	3,980	5,380	-----

NOTE—Discharge estimated Dec. 10-12, 17-20, Dec. 30 to Jan. 3, 6-11 and Jan. 13-21, because of ice, from weather records, study of gage height graph and comparison with similar studies for North Branch Susquehanna River at Towanda, West Branch Susquehanna River at Williamsport and Susquehanna River at Sunbury, and June 24 to July 7, because of no gage height record, from weather records, study of gage height graphs and comparison with discharge of North Branch Susquehanna River at Wilkes-Barre and Susquehanna River at Sunbury.

Monthly discharge of North Branch Susquehanna River at Danville for the year ending Sept. 30, 1927.

(Drainage area 11,200 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	32,500	7,000	16,600	1.48	1.71
November	134,000	13,600	38,500	3.44	3.84
December	19,400	6,170	9,880	.882	1.02
January	59,900	3,000	13,600	1.21	1.40
February	45,800	10,700	24,300	2.17	2.26
March	107,000	16,100	49,600	4.43	5.11
April	33,200	8,320	18,000	1.61	1.80
May	105,000	11,600	28,500	2.54	2.93
June	23,600	4,600	9,110	.813	.91
July	5,380	2,800	3,680	.329	.38
August	7,000	2,530	3,730	.333	.38
September	12,600	2,270	4,690	.419	.47
The Year	134,000	2,270	18,300	1.63	22.21

#### SUSQUEHANNA BASIN—STATION NO. 12

#### WEST BRANCH SUSQUEHANNA RIVER AT BOWER

*Location.*—At single-span steel highway bridge, about four miles northeast of Mahaffey, near railroad station at Bower, Clearfield County.

*Drainage Area.*—320 square miles.

*Records Available.*—October 2, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by A. T. Bell. Elevation of gage zero 1,207.22 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is low and subject to overflow at extremely high stages; left is high and not subject to overflow. Bed is composed of gravel. Control is at a riffle about 200 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 12.80 feet observed at 5 p. m. January 22 (discharge, about 12,200 second-feet); minimum, 4.05 feet at 6 p. m. September 7 and September 28 (discharge, 50 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 20 and 4,000 second-feet. Gage read to hundredths twice daily; during high stages more fre-



quently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages when they are fair.

*Daily Mean Gage Height, in feet, of West Branch Susquehanna River at Bower for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.81	6.76	5.74	6.51	6.56	6.49	6.07	5.95	5.48	4.45	6.21	4.31
2	6.02	6.48	5.56	6.08	6.34	6.32	8.27	5.74	5.30	4.41	5.66	4.28
3	6.36	6.25	5.44	6.04	6.22	6.05	8.17	5.62	5.18	4.38	5.37	4.23
4	6.26	6.04	5.48	5.96	6.49	5.85	7.59	5.56	5.76	4.39	4.98	4.19
5	6.10	5.86	4.96	5.90	6.39	5.79	7.52	5.92	7.60	4.30	4.79	4.15
6	7.20	5.72	6.36	5.78	7.28	6.49	7.33	5.63	6.54	4.26	4.69	4.08
7	6.60	5.54	6.58	5.66	7.56	8.36	7.03	5.47	6.12	4.43	4.59	4.06
8	6.28	5.44	6.66	5.42	6.82	10.67	6.65	5.34	5.86	4.69	4.61	4.18
9	5.98	5.44	6.90	5.44	6.49	9.37	6.41	5.26	5.62	4.52	4.87	4.60
10	5.75	5.98	6.66	5.35	6.27	7.97	6.23	5.28	5.44	4.29	4.76	4.34
11	5.65	5.65	6.46	5.35	6.05	7.31	5.97	5.32	5.30	4.27	4.55	4.80
12	5.50	5.46	6.34	5.32	5.95	6.99	5.78	5.20	5.14	4.26	4.43	4.68
13	5.38	5.37	6.30	5.25	5.81	6.89	5.66	5.09	5.04	4.29	4.39	4.45
14	5.32	5.34	7.21	5.38	6.67	7.03	5.56	5.16	5.62	4.20	4.47	4.37
15	5.18	5.28	6.63	5.72	8.03	6.95	5.40	5.42	5.84	4.21	4.80	4.24
16	5.08	6.58	5.89	5.59	7.32	6.55	5.31	5.42	5.24	4.29	4.67	4.16
17	5.44	7.50	5.60	5.58	7.19	6.27	5.36	5.67	5.05	4.30	4.51	4.20
18	5.78	6.90	5.58	5.56	7.38	6.25	5.28	5.95	4.94	4.45	4.61	4.18
19	6.58	7.62	5.56	6.50	7.15	6.82	5.41	8.46	5.12	4.26	5.05	4.78
20	6.16	7.00	5.54	10.80	6.83	8.76	5.53	8.76	5.25	4.20	4.83	4.76
21	6.25	6.62	5.66	11.40	6.71	11.27	5.38	7.40	5.04	4.68	5.45	4.34
22	5.98	6.35	5.69	12.20	6.39	9.79	6.00	6.68	4.88	5.55	5.07	4.24
23	5.85	6.05	5.50	10.70	6.97	8.17	5.86	6.78	4.84	5.69	4.87	4.22
24	6.55	5.86	5.33	8.36	7.82	7.31	5.58	6.60	4.86	5.33	4.75	4.14
25	7.75	5.76	5.72	7.38	8.19	6.77	5.49	7.24	4.68	4.84	4.61	4.16
26	7.42	5.66	5.78	6.78	8.27	6.47	5.44	6.62	4.87	4.63	4.51	4.10
27	6.88	5.82	5.51	6.02	7.48	6.71	6.24	6.55	4.79	4.49	4.43	4.11
28	6.48	5.65	5.50	6.20	6.97	6.39	6.52	6.12	4.63	4.44	4.35	4.06
29	6.23	5.49	5.36	7.65	-----	6.13	6.44	5.91	4.55	4.40	4.35	4.11
30	6.21	5.85	6.58	7.55	-----	6.01	6.26	5.90	4.49	4.78	4.41	4.12
31	6.50	-----	6.56	7.25	-----	6.10	-----	5.70	-----	6.38	4.43	-----

NOTE—Stage-discharge relation Dec. 4-20 and Dec. 28 to Jan. 19 affected by ice.

*Daily discharge, in second-feet, of West Branch Susquehanna River at Bower for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	550	1,260	522	220	1,090	1,010	700	640	400	102	795	82
2	670	1,010	422	240	900	865	2,910	522	315	96	470	77
3	900	830	378	260	795	700	2,770	445	280	92	335	70
4	830	700	280	260	1,010	580	2,060	422	522	94	220	64
5	730	580	190	260	935	550	1,950	610	2,060	80	165	60
6	1,640	495	200	220	1,740	1,010	1,740	470	1,010	74	145	53
7	1,090	422	260	190	2,060	3,050	1,450	378	730	100	125	51
8	865	378	360	160	1,260	7,060	1,090	535	580	145	125	63
9	670	378	380	140	1,010	4,660	935	298	445	110	178	125
10	522	670	360	140	830	2,520	830	315	378	78	155	86
11	470	470	320	140	700	1,740	640	315	315	76	118	165
12	400	378	300	140	640	1,450	550	280	265	74	100	145
13	355	335	400	140	550	1,360	470	250	235	78	94	102
14	315	335	500	120	1,180	1,450	422	265	445	65	106	90
15	280	315	440	120	2,520	1,450	355	355	580	66	165	71
16	250	1,090	300	140	1,740	1,090	315	355	298	78	135	61
17	378	1,950	220	140	1,640	830	335	470	235	80	110	65
18	550	1,360	200	160	1,840	830	315	640	205	102	125	63
19	1,090	2,060	260	700	1,640	1,260	355	3,200	250	74	235	165
20	762	1,450	360	7,270	1,260	3,660	422	3,660	298	65	178	155
21	830	1,090	470	8,610	1,180	8,380	355	1,840	235	145	378	86
22	670	900	495	10,600	935	5,350	670	1,180	190	422	235	71
23	580	700	400	7,060	1,450	2,770	580	1,260	178	495	178	68
24	1,090	580	335	3,050	2,280	1,740	445	1,090	178	335	155	59
25	2,280	522	495	1,840	2,770	1,260	400	1,640	145	178	125	61
26	1,840	470	550	1,260	2,910	972	378	1,090	178	135	110	55
27	1,360	550	400	670	1,950	1,180	830	1,090	165	108	100	56
28	1,010	470	340	795	1,450	935	1,010	730	135	101	88	51
29	830	400	280	2,060	-----	762	972	610	118	108	88	56
30	795	580	260	2,060	-----	670	830	610	108	165	96	57
31	1,010	-----	240	1,640	-----	730	-----	495	-----	935	100	-----

NOTE—Discharge Dec. 4-20 and Dec. 28 to Jan. 19 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Williamsport, Frankstown Branch Juniata River at Williamsburg and Little Juniata River at Tyrone.

*Monthly discharge of West Branch Susquehanna River at Bower for the year ending Sept. 30, 1927.*

(Drainage area 320 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,280	250	826	2.58	2.97
November	2,060	315	758	2.37	2.64
December	550	190	352	1.10	1.27
January	10,600	120	1,640	5.12	5.90
February	2,910	550	1,440	4.50	4.69
March	8,380	550	2,000	6.25	7.21
April	2,910	315	903	2.82	3.15
May	3,660	250	884	2.61	3.01
June	2,060	108	383	1.20	1.34
July	935	65	157	.491	.57
August	795	88	185	.578	.67
September	165	51	81.1	.253	.28
The Year	10,600	51	794	2.48	33.70

#### SUSQUEHANNA BASIN—STATION NO. 13

#### CLEARFIELD CREEK AT DIMELING

*Location.*—At single-span steel highway bridge, Dimeling, Clearfield County, about 400 feet downstream from the mouth of Little Clearfield Creek.

*Drainage Area.*—370 square miles.

*Records Available.*—October 2, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by John Olson. Elevation of gage zero 1,145.56 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Left bank is high and not subject to overflow; right is low and is overflowed at extremely high stages. Bed at control riffle, about 250 feet downstream from the gage, is composed of coarse gravel and boulders; probably permanent.

*Extremes of Discharge.*—Maximum open-water stage during the year, estimated from hydrograph, 11.8 feet at 1 p. m. March 8 (discharge, 9,440 second-feet); a stage of 16.0 feet, estimated from hydrograph, was reached at 8 p. m. January 20, but the water was held back by an ice jam; minimum, 3.64 feet at 4 p. m. September 30 (discharge, 53 second-feet).



*Ice.*—Stage-discharge relation seriously affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Daily Mean Gage Height, in feet, of Clearfield Creek at Dimeling for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				6.49	6.52	5.98	5.82	5.90	5.35	4.22	6.02	4.09
2	4.92			6.94	6.70	5.58		5.72	5.15	4.18	5.27	4.02
3				6.96	6.50	5.54		5.48	5.02	4.14	4.82	3.96
4				6.91	6.56	5.48		5.44	5.40	4.13	4.52	3.90
5				6.99	6.51	5.41		5.65	7.27	4.08	4.38	3.82
6				5.71	7.00	6.10		5.44	6.63	3.99	4.28	3.80
7				5.78	6.96	7.04		5.36	5.78	4.11	4.20	3.75
8				5.62	6.99	6.45	10.55	5.81	5.18	5.62	4.25	3.78
9		5.72	5.68	7.08	6.19	9.67	5.64	5.08	5.45	4.38	4.26	4.07
10	5.02	5.98	5.54	7.09	6.18	8.00	5.72	4.91	5.22	4.05	4.32	4.22
11	4.84		5.74	6.99	6.09	7.28	5.48	4.91	5.05	3.95	4.18	4.17
12	4.92		5.61	6.92	5.96	7.05		4.88	4.90	3.97	4.01	4.55
13	4.78		5.54	6.90	5.52	6.82	5.08	4.76	4.79	3.97	3.92	4.22
14	4.76	4.96	5.58	6.96	6.10	7.08	5.02	4.72	5.40	3.98	4.25	4.05
15	4.54		5.59	7.09	6.70	7.02	4.96	5.22	5.98	3.87	4.54	3.99
16	4.42	5.11	5.53	6.94	6.96	6.48	4.96	5.32	5.42	3.92	4.61	3.91
17	4.50		5.67	6.96	6.72	5.98	5.18	5.16	5.00	3.84	4.26	3.86
18			5.92	6.94	6.77	6.05	5.18	5.30	4.72	4.00	4.26	3.79
19			5.86	7.80	6.68	7.55	5.39	7.75	5.00	3.95	4.52	4.00
20			5.69	13.20		8.70	5.55	8.87	5.18	3.79	4.45	4.53
21			5.72	10.30		10.62	5.62	7.25	5.00	3.78	5.05	4.04
22		5.91	5.79	10.00	6.01	10.00	6.18	6.50	4.82	4.65	5.15	3.91
23		5.42	5.78	9.60	6.12	8.20	6.08	7.08	4.68	4.82	4.75	3.82
24			5.76		6.82	6.95	5.88	6.80	4.68	5.03	4.50	3.79
25			5.81		7.63	6.98	5.82	7.45	4.55	4.45	4.36	3.72
26			5.86		7.69	6.18	5.82	6.98	4.61	4.21	4.28	3.65
27			6.06		7.68	5.88	6.30	6.58	4.56	4.09	4.18	3.70
28			6.48	7.45	6.88	5.78	7.45	6.15	4.46	4.00	4.15	3.68
29			6.52			5.58	6.60	5.86	4.32	4.03	4.11	3.70
30			6.41			5.59	6.25	5.72	4.18	4.63	4.09	3.67
31			6.48	6.90		5.58		5.59		6.00	4.10	

NOTE—Gage height Oct. 1, 3-9, Oct. 18 to Nov. 8, Nov. 11-13, 15, 17-21, Nov. 24 to Dec. 5, Jan. 24-27, 29, 30, Feb. 20, 21, Apr. 2-7 and 12 not observed. Stage-discharge relation Dec. 6 to Jan. 21 affected by ice.

*Daily discharge, in second-feet, of Clearfield Creek at Dimeling for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	400	850	500	260	1,260	915	790	850	540	150	915	129
2	355	750	400	260	1,420	675	1,600	730	450	150	492	109
3	480	600	320	280	1,260	648	1,900	620	390	140	320	102
4	750	500	260	300	1,340	620	1,700	592	565	140	220	91
5	700	480	260	280	1,260	565	1,600	702	2,000	129	195	78
6	900	440	260	260	980	675	1,300	592	1,340	107	172	75
7	1,000	420	300	220	1,700	1,180	1,000	540	790	129	150	68
8	800	440	400	200	1,180	6,940	790	470	675	161	150	72
9	550	730	440	180	1,040	5,270	702	430	592	195	161	119
10	390	915	400	170	1,040	2,800	730	355	470	119	172	150
11	338	800	360	160	980	2,000	620	355	410	100	150	140
12	355	550	360	150	882	1,700	500	355	355	104	109	235
13	320	460	400	150	620	1,520	430	302	320	104	95	150
14	302	372	600	150	980	1,800	390	285	565	105	161	119
15	235	380	500	150	1,420	1,700	372	470	915	86	235	107
16	195	430	360	150	1,700	1,260	372	515	565	95	250	93
17	220	2,200	280	160	1,420	915	470	450	390	81	161	85
18	400	1,600	260	320	1,520	915	470	515	285	109	161	74
19	750	2,400	260	550	1,420	2,320	565	2,560	390	100	220	109
20	850	2,000	320	6,500	1,300	3,720	648	4,000	470	74	208	235
21	900	1,200	480	6,000	1,000	6,940	675	1,900	390	72	410	119
22	1,000	850	600	5,800	915	5,800	1,040	1,260	320	268	450	93
23	1,900	565	480	5,100	980	3,040	980	1,800	285	320	302	78
24	2,400	480	380	3,800	1,520	1,700	850	1,520	285	410	220	74
25	2,400	440	440	2,800	2,320	1,700	790	2,100	235	208	184	64
26	1,900	440	600	2,200	2,440	1,040	790	1,700	250	150	172	54
27	1,600	440	550	1,400	2,440	850	1,120	1,340	235	129	150	61
28	1,300	480	420	2,100	1,600	790	2,100	1,040	208	109	140	58
29	1,000	600	340	2,400		675	1,340	820	172	119	129	61
30	1,000	650	280	2,400		675	1,040	730	150	268	129	57
31	1,000		260	1,600		675		675		915	129	

NOTE—Discharge estimated Oct. 1, 3-9, Oct. 18 to Nov. 8, Nov. 11-13, 15, 17-21, Nov. 24 to Dec. 5, Jan. 24-27, 29, 30, Feb. 20, 21, Apr. 2-7 and 12, because of no gage height record, from weather records, study of gage height graphs and comparison with discharge of West Branch Susquehanna River at Bower, Bald Eagle Creek at Beech Creek Station, Frankstown Branch Juniata River at Williamsburg and Little Juniata River at Tyrone, and Dec. 6 to Jan. 21, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Bower, Bald Eagle Creek at Beech Creek Station and Frankstown Branch Juniata River at Williamsburg.

*Monthly discharge of Clearfield Creek at Dimeling for the year ending Sept. 30, 1927.*  
(Drainage area 370 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,400	195	861	2.33	2.69
November	2,400	372	782	2.11	2.35
December	600	260	389	1.05	1.21
January	6,500	150	1,530	4.14	4.77
February	2,440	620	1,350	3.65	3.80
March	6,940	565	2,000	5.41	6.24
April	2,100	372	922	2.49	2.78
May	4,000	285	986	2.66	3.07
June	2,000	150	500	1.35	1.51
July	915	72	172	.465	.54
August	915	95	229	.619	.71
September	235	54	102	.276	.31
The Year	6,940	54	818	2.21	29.98



## SUSQUEHANNA BASIN—STATION NO. 14

DRIFTWOOD BRANCH SINNEMAHONING CREEK AT  
STERLING RUN

*Location.*—At three-span steel highway bridge, Sterling Run, Cameron County, about 300 feet upstream from mouth of Sterling Run.

*Drainage Area.*—270 square miles.

*Records Available.*—September 30, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by C. U. Lupro. Elevation of gage zero 894.60 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are low and subject to overflow during extremely high stages. Bed is composed of gravel. The control for low stages is at the first of a series of gravel riffles extending from 50 to 100 feet downstream from the gage; probably permanent. The control for medium and high stages, which was at the first of a series of riffles extending from 300 to 500 feet downstream from the gage, was changed on November 2, 1921, when a portion of the gravel bar, deposited by flow from Sterling Run on September 10, 1921, was washed away.

*Extremes of Discharge.*—Maximum stage during the year, 6.20 feet observed at 9 a. m. May 25 (discharge, 8,820 second-feet); minimum, 0.56 foot at 3 p. m. September 27, 28 and 29 (discharge, 22 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined between 20 and 10,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

Daily Mean Gage Height, in feet, of Driftwood Branch Sinnemahoning Creek at  
Sterling Run for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.88	1.98	2.00	1.50	2.30	1.92	1.80	2.12	1.90	0.78	0.86	0.73
2	1.76	2.10	1.98	1.30	2.16	1.85	2.34	1.93	1.62	.78	.86	.68
3	1.86	1.98	1.97	1.38	2.04	1.76	2.40	1.80	1.54	.77	.76	.64
4	1.78	1.86	1.83	1.50	2.26	1.62	2.29	1.75	1.58	.75	.71	.62
5	1.61	1.79	1.46	1.42	2.12	1.54	2.30	2.00	2.19	.74	.69	.62
6	2.18	1.66	1.57	1.42	2.12	1.74	2.63	1.98	2.16	.72	.68	.60
7	2.10	1.62	1.28	1.33	2.16	2.00	2.88	1.93	1.98	.78	.66	.59
8	1.96	1.58	1.66	1.32	2.02	3.90	2.68	1.90	1.86	.84	.72	.59
9	1.84	1.51	1.74	1.18	1.98	3.49	2.40	1.72	1.70	.74	.98	.60
10	2.53	1.80	1.61	1.18	1.95	2.93	2.14	1.62	1.54	.74	.79	.58
11	2.22	1.71	1.54	1.25	1.88	2.76	1.94	1.60	1.42	.72	.73	.61
12	2.07	1.69	1.55	1.22	1.76	2.90	1.62	1.50	1.31	.88	.70	.60
13	1.91	1.66	1.48	1.29	1.65	3.20	1.52	1.42	1.24	.78	.70	.62
14	1.78	1.63	1.62	1.28	1.71	4.64	1.56	1.40	1.26	.74	.72	.62
15	1.72	1.60	1.80	1.32	2.08	3.99	1.45	1.99	1.25	.70	.90	.64
16	1.64	2.60	1.44	1.31	1.96	3.09	1.83	2.16	1.10	.72	.78	.62
17	1.59	3.53	1.56	1.32	2.46	2.76	1.42	2.26	1.04	.78	.71	.61
18	1.54	2.93	1.40	1.39	2.68	2.77	1.34	2.28	1.00	.74	.72	.60
19	1.61	3.16	1.51	1.49	2.62	2.92	1.29	2.31	1.02	.74	.82	.62
20	1.54	2.94	1.70	3.43	2.40	2.92	1.28	2.40	1.10	.70	.75	.68
21	1.57	2.54	1.83	3.36	2.18	4.50	1.22	2.26	1.04	.68	.73	.67
22	1.52	2.24	1.57	3.82	2.04	4.30	1.48	2.10	.96	.68	.74	.63
23	1.52	2.02	1.50	4.04	2.20	3.17	1.40	2.20	.92	1.00	.75	.61
24	1.76	1.84	1.50	2.06	2.51	2.62	1.40	3.08	.90	.89	.70	.62
25	3.22	1.74	1.46	2.52	2.44	2.32	1.38	5.50	.84	.84	.69	.60
26	3.14	1.66	1.42	2.18	2.56	2.12	1.55	4.29	.95	.81	.68	.60
27	2.55	1.98	1.42	1.73	2.32	1.98	2.49	3.25	.90	.71	.66	.56
28	2.30	1.85	1.59	1.82	2.09	2.02	3.20	2.58	.86	.71	.66	.56
29	2.08	1.86	1.69	1.92	-----	1.93	2.82	2.42	.81	.70	.70	.56
30	1.93	2.06	1.61	2.20	-----	1.88	2.42	2.06	.80	.70	.71	.58
31	1.96	-----	1.43	2.56	-----	1.88	-----	2.07	-----	.78	.76	-----

NOTE—Stage-discharge relation Dec. 17-21 and Dec. 31 to Jan. 21 affected by ice.

Daily discharge, in second-feet, of Driftwood Branch Sinnemahoning Creek at  
Sterling Run for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	602	692	710	200	1,040	638	630	810	620	36	51	33
2	498	810	692	170	865	575	1,100	947	386	39	51	28
3	584	692	683	170	760	498	1,170	560	328	37	26	25
4	514	584	557	150	980	386	1,040	490	360	35	26	24
5	378	522	278	150	810	328	1,040	710	920	34	28	24
6	920	418	349	140	810	482	1,540	692	865	31	28	23
7	810	386	186	130	865	710	1,940	647	692	39	27	23
8	674	356	418	120	710	3,800	1,610	620	584	48	31	23
9	566	507	482	120	692	3,030	1,170	466	450	34	78	23
10	1,380	530	378	120	665	2,020	865	386	328	34	40	22
11	920	458	328	120	602	1,690	656	370	256	31	22	24
12	760	442	335	120	498	1,940	386	300	200	55	29	23
13	629	418	289	110	410	2,470	314	256	168	39	29	24
14	514	394	386	100	458	5,240	342	245	177	31	31	24
15	466	370	530	100	810	4,000	272	701	168	29	58	25
16	402	1,460	267	100	674	2,290	235	865	115	31	39	24
17	363	3,030	200	95	1,240	1,690	256	980	96	39	30	24
18	328	2,020	200	100	1,610	1,690	215	1,040	83	34	31	23
19	378	2,470	200	150	1,460	1,940	190	1,040	89	34	44	24
20	328	2,020	300	380	1,170	1,940	186	1,170	115	29	35	28
21	349	1,380	380	1,600	920	5,030	159	980	96	28	33	27
22	314	980	349	3,600	760	4,610	289	810	73	28	34	25
23	314	710	300	4,000	920	2,470	245	920	63	83	35	24
24	498	566	300	2,290	1,310	1,460	245	2,290	58	56	29	24
25	2,470	482	278	1,310	1,240	1,040	235	7,190	48	48	28	23
26	2,290	418	256	920	1,380	810	335	4,610	70	43	28	23
27	1,380	692	256	474	1,040	692	1,310	2,470	58	30	27	22
28	1,040	575	363	548	810	710	2,470	1,460	51	30	27	22
29	810	584	442	638	-----	647	1,770	1,170	43	29	29	22
30	647	760	378	920	-----	602	1,170	760	41	29	30	22
31	674	-----	240	1,380	-----	602	-----	760	-----	39	36	-----

NOTE—Discharge Dec. 17-21 and Dec. 31 to Jan. 21 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Renovo, Pine Creek at Cedar Run and Allegheny River near Larabee.



Monthly discharge of Driftwood Branch Sinnemahoning Creek at Sterling Run for the year ending Sept. 30, 1927.  
(Drainage area 270 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,470	314	735	2.72	3.14
November	3,030	307	851	3.15	3.51
December	710	186	365	1.35	1.56
January	4,000	95	662	2.45	2.82
February	1,610	410	911	3.37	3.51
March	5,240	328	1,810	6.70	7.72
April	2,470	159	776	2.87	3.20
May	7,190	245	1,170	4.33	4.99
June	920	41	253	.937	1.05
July	83	28	37.6	.139	.16
August	78	27	35.3	.131	.15
September	33	22	24.2	.090	.10
The Year	7,190	22	635	2.35	31.91

#### SUSQUEHANNA BASIN—STATION NO. 15

### WEST BRANCH SUSQUEHANNA RIVER AT RENOVO

*Location.*—At three-span steel highway bridge, Eighth Street, Renovo, Clinton County.

*Drainage Area.*—2,990 square miles.

*Records Available.*—July 1, 1895, to December 31, 1903, and October 1, 1905, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by J. H. Baird. Elevation of gage zero 634.03 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of rocks. Control is at the first of a series of riffles about 1,000 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 11.8 feet at 4 a. m. January 23 and at midnight March 21-22 (discharge, 55,400 second-feet); minimum, —0.56 foot at 8 a. m. September 30 (discharge, 248 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 200 and 2,000 second-feet and fairly well defined from 2,000 to 75,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they are fair.

Discharge measurements of West Branch Susquehanna River at Renovo during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
52	Sept. 17a	Geo. Weber	Feet —0.25	Sec.-ft. 423

a Measurement made by wading 1,800 feet upstream from gage.

Daily Mean Gage Height, in feet, of West Branch Susquehanna River at Renovo for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.62	3.60	2.94	2.00	4.55	4.18	3.15	3.92	3.38	0.58	0.38	—0.02
2	2.43	3.68	2.87	1.96	3.95	3.72	4.20	3.45	2.87	.52	1.10	—0.06
3	2.97	3.45	2.66	1.90	3.78	3.52	5.90	3.20	2.56	.47	1.27	—0.08
4	2.74	3.21	2.57	2.08	4.02	3.16	5.48	2.99	2.48	.42	.86	—0.14
5	2.54	2.96	2.28	1.86	4.05	2.94	5.20	3.52	4.15	.32	.54	—0.20
6	2.71	2.79	1.90	1.84	3.92	2.93	5.78	3.52	5.01	.28	.34	—0.30
7	3.17	2.62	2.65	1.66	4.58	3.65	5.98	3.26	4.20	.37	.35	—0.36
8	2.99	2.41	3.20	1.23	4.54	9.70	5.62	3.05	3.70	.46	.39	—0.39
9	2.72	2.44	2.44	1.02	4.05	9.48	4.95	2.82	3.20	.45	.55	—0.40
10	2.52	2.83	2.42	1.39	3.78	7.60	4.40	2.65	2.86	.36	.63	—0.42
11	2.48	3.02	2.40	1.64	3.55	6.40	3.90	2.58	2.55	.35	.34	—0.43
12	2.50	2.84	2.32	1.93	3.32	6.05	3.42	2.38	2.24	.30	.30	—0.21
13	2.41	2.64	2.22	2.04	3.05	6.45	3.10	2.18	2.05	.29	.16	—0.03
14	2.23	2.45	2.18	2.02	2.91	7.80	2.75	2.08	2.01	.13	.11	.12
15	2.03	2.28	2.92	2.25	4.15	7.70	2.56	2.51	2.28	.04	.29	—0.02
16	1.90	3.75	2.65	2.38	4.60	6.28	2.34	2.85	2.34	.06	.65	—0.13
17	1.79	6.70	2.26	2.35	4.90	5.35	2.30	3.04	1.84	.06	.44	—0.22
18	1.84	6.40	2.14	2.47	5.55	4.90	2.28	3.16	1.56	.04	.42	—0.26
19	2.39	6.65	1.96	2.42	5.92	5.35	2.10	3.85	1.47	.04	.31	—0.30
20	2.76	6.08	2.17	3.85	5.45	5.95	2.05	6.55	1.71	—0.03	.33	—0.35
21	2.65	5.32	2.86	8.25	4.78	9.80	2.11	5.88	1.72	.09	.42	—0.39
22	2.62	4.80	2.91	9.60	4.22	10.80	2.83	4.95	1.52	.10	.65	—0.25
23	2.52	4.05	2.63	11.10	4.08	8.25	3.67	5.00	1.33	1.00	.89	—0.19
24	2.45	3.65	2.33	8.55	4.90	6.35	3.48	6.45	1.16	1.55	.53	—0.29
25	3.90	3.20	2.46	6.35	5.42	5.28	3.17	8.50	1.05	1.13	.32	—0.40
26	6.10	3.08	2.38	5.03	5.92	4.52	3.00	8.22	1.07	.76	.20	—0.48
27	5.42	3.08	2.16	4.05	5.50	4.22	3.75	6.79	1.03	.44	.08	—0.51
28	4.52	2.87	2.27	3.38	4.75	4.10	5.30	5.62	.93	.32	.01	—0.52
29	3.95	2.77	2.51	3.35	—	3.70	5.45	4.75	.84	.26	—0.02	—0.51
30	3.52	2.83	2.28	4.95	—	3.42	4.50	4.12	.75	.22	—0.02	—0.55
31	3.42	—	1.92	5.20	—	3.26	—	3.72	—	.21	—0.01	—

NOTE—Stage-discharge relation Dec. 4 to Jan. 20 affected by ice.



Daily discharge, in second-feet, of West Branch Susquehanna River at Renovo for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,590	7,160	5,300	2,200	10,600	9,050	6,060	8,060	6,590	1,160	950	585
2	4,140	7,450	5,300	1,900	8,380	7,450	9,050	6,590	5,300	1,050	1,770	555
3	5,550	6,590	4,820	1,900	7,750	6,870	16,600	6,060	4,590	1,000	2,050	540
4	4,820	6,060	3,600	1,600	8,380	6,060	14,600	5,550	4,360	950	1,450	497
5	4,360	5,550	3,000	1,600	8,380	5,300	13,100	6,870	9,050	855	1,100	455
6	4,820	5,060	2,600	1,500	8,060	5,300	16,100	6,870	12,200	855	902	390
7	6,060	4,590	3,000	1,400	10,600	7,160	17,100	6,320	9,050	902	902	354
8	5,550	4,140	4,200	1,300	10,200	40,200	15,100	5,550	7,450	1,000	950	336
9	4,820	4,140	4,200	1,300	8,380	38,800	12,200	5,060	6,060	1,000	1,100	330
10	4,360	5,060	4,000	1,200	7,750	26,200	9,770	4,590	5,300	902	1,220	319
11	4,360	5,550	3,800	1,200	7,160	19,100	8,060	4,590	4,590	902	902	314
12	4,590	5,060	3,800	1,200	6,320	17,100	6,590	4,140	3,710	855	855	448
13	4,140	4,590	3,600	1,200	5,550	19,100	5,800	3,710	3,300	855	722	578
14	3,710	4,140	3,600	1,200	5,300	27,400	5,060	3,500	3,300	722	680	600
15	3,300	3,920	3,800	1,200	9,050	26,800	4,590	4,360	3,920	640	855	585
16	3,100	7,750	3,800	1,200	10,600	18,600	3,920	5,060	3,920	640	1,220	504
17	2,900	20,800	3,200	1,200	11,800	14,100	3,920	5,550	2,900	640	1,000	442
18	2,900	19,100	2,600	1,200	15,100	11,800	3,920	6,060	2,530	640	950	416
19	4,140	20,200	2,400	1,300	16,600	14,100	3,500	7,750	2,360	640	855	390
20	5,060	17,600	2,600	5,500	14,100	17,100	3,300	20,200	2,710	578	902	360
21	4,590	13,600	3,000	29,800	11,400	40,900	3,500	16,600	2,710	680	950	336
22	4,590	11,400	3,800	39,500	9,050	47,900	5,060	12,200	2,360	680	1,220	422
23	4,360	8,380	3,600	49,300	8,710	29,800	7,450	12,200	2,050	1,640	1,510	462
24	4,140	7,160	3,400	32,500	11,800	19,100	6,870	19,100	1,910	2,530	1,100	336
25	8,060	6,060	3,200	19,100	14,100	13,600	6,060	31,800	1,640	1,770	855	330
26	17,600	5,800	3,400	12,200	16,600	10,200	5,550	29,800	1,770	1,330	765	286
27	14,100	5,800	3,400	8,380	14,600	9,050	7,750	21,400	1,640	1,000	680	270
28	10,200	5,300	3,200	6,590	11,400	8,710	13,600	15,100	1,580	855	600	266
29	8,380	5,060	2,800	6,590	-----	7,450	14,100	11,400	1,450	810	585	270
30	6,870	5,060	2,600	12,200	-----	6,590	10,200	8,710	1,330	765	585	252
31	6,590	-----	2,200	13,100	-----	6,320	-----	7,450	-----	765	592	-----

NOTE—Discharge Dec. 4 to Jan. 20 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Bower and Williamsport.

Monthly discharge of West Branch Susquehanna River at Renovo for the year ending Sept. 30, 1927.

(Drainage area 2,990 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	17,600	2,900	5,700	1.91	2.20
November	20,800	3,920	7,940	2.66	2.97
December	5,300	2,200	3,480	1.16	1.34
January	49,300	1,200	8,440	2.82	3.25
February	16,600	5,300	10,300	3.44	3.58
March	47,900	5,300	17,300	5.79	6.68
April	17,100	3,300	8,620	2.88	3.21
May	31,800	3,500	10,100	3.38	3.90
June	12,200	1,330	4,050	1.35	1.51
July	2,530	578	955	.319	.37
August	2,050	585	993	.332	.38
September	680	252	412	.138	.15
The Year	49,300	252	6,510	2.18	29.54

SUSQUEHANNA BASIN—STATION NO. 16

## WEST BRANCH SUSQUEHANNA RIVER AT LOCK HAVEN

*Location.*—At four-span steel highway bridge, Jay Street, Lock Haven, Clinton County.

*Drainage Area.*—3,350 square miles.

*Records Available.*—October 1, 1913, to August 31, 1923, and August 14, 1925, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read twice daily by E. A. McGill to hundredths below 3.3 feet and to half-tenths above; during high stages more frequently. Elevation of gage zero 535.00 feet, United States Geological Survey datum. Previous to October 4, 1921, a painted staff gage on right side of first pier was read to half-tenths; elevation of gage zero was 540.95 feet. The standard chain gage attached to the downstream side of the wooden covered bridge, for the purpose of obtaining low stages, was destroyed by fire on January 27, 1919.

*Channel and Control.*—Both banks are high and not subject to overflow. Control for medium and high stages is the remaining portion of an old dam about 2,300 feet downstream from the gage; probably permanent.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 18.0 feet at 6 a. m. January 23; a gage height of 20.10 feet was observed at noon January 21, but the water was held back by an ice jam; minimum, 0.84 foot at 4 p. m. September 30.

*Ice.*—Stage-discharge relation seriously affected by ice.

*Flood Warning.*—Gage heights obtained at this station are for Flood Warning purposes.



Daily Mean Gage Height, in feet, of West Branch Susquehanna River at Lock Haven for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.99	4.92	4.25	3.91	5.87	6.46	4.45	5.34	4.52	2.09	1.88	1.46
2	3.82	5.05	4.23	3.87	5.43	5.09	4.93	4.84	4.20	2.01	2.46	1.45
3	3.68	4.82	4.02	3.82	5.09	4.84	6.73	4.46	3.90	1.94	2.73	1.43
4	3.57	4.57	3.98	3.81	5.10	4.49	6.81	4.40	3.70	1.92	2.45	1.31
5	3.52	4.39	3.42	3.68	5.13	4.26	6.75	4.44	4.37	1.87	2.10	1.23
6	3.85	4.17	2.92	3.82	5.27	4.39	6.95	4.74	6.22	1.84	1.92	1.20
7	4.32	4.02	2.93	3.92	5.37	4.89	7.35	4.40	5.51	1.93	1.88	1.17
8	4.21	3.85	4.06	3.98	5.83	7.94	7.03	4.18	4.93	2.00	1.81	1.12
9	4.08	3.72	4.11	3.88	5.35	12.04	6.45	4.05	4.53	1.98	1.86	1.09
10	3.90	4.02	3.78	3.68	5.05	9.34	5.73	3.90	4.19	1.89	1.86	1.07
11	3.73	4.37	3.69	3.64	4.80	7.19	5.15	3.78	3.73	1.82	1.83	1.04
12	3.62	4.19	3.58	3.58	4.63	6.14	4.81	3.66	3.53	1.77	1.77	1.05
13	3.72	4.10	3.47	3.68	4.25	6.99	4.43	3.48	3.46	1.71	1.77	1.24
14	3.62	3.89	3.54	3.61	4.17	9.14	4.08	3.34	3.29	1.67	1.83	1.37
15	3.40	3.80	3.96	3.48	4.83	9.34	3.75	3.87	3.35	1.64	1.69	1.29
16	3.27	4.72	4.14	3.57	5.45	8.09	3.35	4.00	3.25	1.59	1.80	1.25
17	3.19	8.87	3.91	3.73	5.90	7.09	3.32	4.17	3.17	1.56	1.96	1.22
18	3.21	8.62	3.78	3.83	6.85	6.10	3.45	4.50	3.12	1.52	1.98	1.19
19	3.42	8.59	3.94	3.95	7.20	6.34	3.32	4.42	2.99	1.49	2.03	1.15
20	3.94	8.52	4.44	4.30	6.90	7.69	3.27	7.52	2.83	1.50	2.07	1.11
21	4.08	7.27	4.91	11.25	6.26	12.34	3.24	7.57	3.14	1.46	2.12	1.07
22	3.98	6.35	5.12	12.85	5.82	13.84	3.58	6.77	3.00	1.49	2.07	1.04
23	3.86	5.65	4.78	15.55	5.39	10.24	4.83	6.54	2.83	1.76	2.07	1.02
24	4.35	5.12	4.38	12.05	5.84	7.92	4.61	7.40	2.73	2.73	2.09	1.01
25	5.75	4.67	4.23	8.15	6.49	6.91	4.41	9.62	2.56	2.58	1.94	.98
26	7.68	4.39	4.28	6.55	7.32	5.93	4.53	10.62	2.83	2.40	1.77	.97
27	6.95	4.30	4.21	5.63	6.84	5.61	4.75	8.72	2.67	2.03	1.78	.96
28	6.20	4.18	3.86	5.00	6.22	5.35	6.63	7.50	2.48	1.84	1.81	.93
29	5.55	4.09	3.92	4.60	5.08	6.28	6.47	2.33	1.78	1.78	1.72	.88
30	5.08	4.05	3.98	5.85	4.71	5.98	5.62	2.19	1.72	1.59	1.59	.85
31	4.75	3.91	6.65	4.48	5.01	1.78	1.51					

NOTE—Stage-discharge relation Dec. 5-8 and Dec. 12 to Jan. 21 affected by ice.

#### SUSQUEHANNA BASIN—STATION NO. 17

### BALD EAGLE CREEK AT MILESBURG

*Location.*—At two-span steel Pennsylvania Railroad bridge, Milesburg, Centre County, about 1,000 feet upstream from the mouth of Spring Creek.

*Drainage Area.*—140 square miles.

*Records Available.*—February 6, 1911, to September 30, 1927.

*Gage.*—Vertical staff fastened to downstream end of bridge pier; read by P. H. Haupt.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is high, steep and rocky; left is low and subject to overflow at extremely high stages. Control is at a riffle about 100 feet upstream from the mouth of Spring Creek, where the bed is composed of gravel and boulders; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 5.7 feet at 7 p. m. January 22 (discharge, about

5,300 second-feet); minimum, 0.01 foot from 8 a. m. September 29 to 4 p. m. September 30 (discharge, 11 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 2,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages when they are fair.

Discharge measurements of Bald Eagle Creek at Milesburg during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
38	Nov. 19	J. M. Snively	3.42	1,070
39	19	do	3.40	1,060
40	Mar. 15	Geo. Weber	2.24	574
41	17	do	1.59	310
42	18	do	1.49	309
43	18	do	1.48	287
44	Apr. 20	do	.84	127
45	21	do	.72	99.9
46	21	do	.71	101
47	Aug. 13a	do	.22	20.5
48	13e	do	.22	21.5

a Measurement made by wading 150 feet upstream from gage.

Daily Mean Gage Height, in feet, of Bald Eagle Creek at Milesburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.58	1.22	0.92	1.34	2.00	1.65	1.70	1.41	1.02	0.58	1.02	0.29
2	.58	1.36	.82	1.32	1.79	1.49	3.18	1.26	.92	.55	.76	.18
3	.64	1.32	.78	1.26	1.68	1.42	2.82	1.15	.82	.66	.61	.08
4	.82	1.28	.74	1.18	2.30	1.36	2.38	1.18	1.88	.58	.52	.05
5	1.48	1.18	.70	1.08	2.08	1.32	2.48	1.44	2.52	.52	.44	.05
6	2.10	1.08	.62	.98	1.98	1.94	2.39	1.39	1.95	.45	.36	.05
7	2.12	.98	.52	.88	1.92	3.00	2.28	1.21	1.61	.60	.40	.05
8	1.52	.94	.46	.78	1.84	4.80	2.04	1.12	1.39	.65	.62	.42
9	1.24	1.50	.42	.82	1.78	3.30	1.80	1.05	1.19	.49	.54	
10	1.11	2.10	.75	.92	1.68	2.30	1.58	1.00	1.01	.38	.38	
11	.98	1.76	1.22	1.00	1.58	2.28	1.34	1.02	.90	.35	.28	
12	.88	1.55	1.35	.98	1.48	2.46	1.22	.95	.81	.33	.24	
13	.91	1.35	1.44	.94	1.38	2.70	1.16	.88	.68	.28	.24	
14	.88	1.22	1.38	.95	1.45	2.98	1.08	.92	1.60	.24	.70	.56
15	.78	1.12	1.28	.98	1.78	2.35	.98	1.42	1.29	.20	.74	.20
16	.68	3.85	1.25	.94	2.12	1.92	.88	1.21	1.02	.22	.46	.08
17	.58	3.70	1.22	.90	2.30	1.65	.84	1.14	.89	.55	.26	.05
18	1.08	3.65	1.20	.91	2.78	1.49	.78	1.35	.71	.58	.34	.05
19	1.15	3.45	1.20	1.05	2.78	1.42	.81	3.55	1.38	.46	.42	.26
20	1.22	2.45	1.31	1.98	2.42	2.95	.88	2.86	1.21	.34	.64	.15
21	1.18	1.92	1.68	3.48	1.99	4.70	.90	2.10	.99	.26	.79	.07
22	1.12	1.68	1.84	4.90	1.75	3.48	2.40	1.71	.88	1.00	.56	.05
23	1.38	1.58	1.80	4.10	1.92	2.52	1.92	1.92	.84	1.31	.45	.05
24	2.38	1.48	1.75	2.86	2.18	2.08	1.65	1.71	.78	1.00	.38	.05
25	3.08	1.38	1.68	2.12	2.12	1.74	1.40	2.40	.85	.88	.28	.05
26	2.45	1.32	1.65	1.60	2.55	1.64	1.38	1.99	1.08	.69	.22	.05
27	1.95	1.38	1.58	1.30	2.22	1.70	1.75	1.92	.89	.64	.16	.03
28	1.54	1.28	1.48	1.24	1.85	1.49	1.94	1.64	.78	.59	.24	.03
29	1.38	1.15	1.44	1.64	1.40	1.75	1.45	.72	.45	.22	.01	
30	1.20	1.00	1.49	2.55	1.31	1.56	1.26	.65	.60	.20	.01	
31	1.25	1.36	2.32	1.18	1.11	1.15						

NOTE—Stage-discharge relation Dec. 4 to Jan. 20 affected by ice. Gage height Sept. 9-13 unsatisfactory.



Daily discharge, in second-feet, of Bald Eagle Creek at Milesburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	197	135	80	456	326	343	250	152	75	152	35
2	75	236	116	80	378	279	1,270	210	135	70	105	22
3	84	223	108	70	343	250	910	186	116	88	80	15
4	116	223	85	65	595	236	649	197	415	75	66	13
5	279	197	70	60	500	223	707	264	707	66	55	13
6	500	174	60	55	456	436	649	250	436	56	44	13
7	500	143	50	50	415	1,080	595	197	310	78	49	13
8	279	139	42	46	396	3,560	478	174	250	86	81	52
9	210	279	42	42	378	1,370	378	163	197	62	69	95
10	174	500	50	36	343	595	310	152	152	46	46	80
11	148	360	110	34	310	595	236	152	131	42	34	40
12	127	294	200	30	279	678	197	142	114	40	29	13
13	133	236	220	26	250	835	186	127	91	34	29	95
14	127	197	190	24	264	1,080	174	135	310	29	94	72
15	108	174	120	24	378	622	148	250	223	24	101	24
16	91	1,990	80	24	500	415	127	197	152	26	57	15
17	75	1,850	55	26	595	326	120	186	129	70	31	13
18	174	1,720	50	34	910	279	108	236	96	75	41	13
19	186	1,480	65	42	910	250	114	1,720	250	57	52	31
20	197	678	95	80	649	1,040	127	950	197	41	84	20
21	197	415	120	1,600	456	3,390	131	500	150	31	110	14
22	174	343	130	3,730	360	1,600	649	343	127	152	72	13
23	250	310	130	2,430	415	707	415	415	120	223	56	13
24	649	279	120	950	546	500	326	343	108	152	46	13
25	1,170	250	120	500	500	360	250	649	122	127	34	13
26	675	223	110	310	738	326	250	456	174	92	26	13
27	436	250	110	223	546	343	360	415	129	84	21	12
28	294	223	100	210	396	279	436	326	108	76	29	12
29	250	186	95	326	-----	250	360	264	98	56	26	11
30	223	152	95	738	-----	223	294	210	86	78	24	11
31	210	-----	85	595	-----	197	-----	174	-----	186	57	-----

NOTE—Discharge estimated Dec. 4 to Jan. 20, because of ice, from weather records, study of gage height graph and comparison with similar studies for Bald Eagle Creek at Beech Creek Station, Frankstown Branch Juniata River at Williamsburg and Little Juniata River at Tyrone, and Sept. 9-13, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with discharge at other stations.

Monthly discharge of Bald Eagle Creek at Milesburg for the year ending Sept. 30, 1927.

(Drainage area 140 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,170	75	264	1.89	2.18
November	1,990	139	464	3.31	3.69
December	220	42	102	.729	.84
January	3,730	24	405	2.89	3.32
February	910	250	474	3.39	3.53
March	3,560	197	731	5.22	6.02
April	1,270	108	377	2.69	3.00
May	1,720	127	330	2.36	2.72
June	707	86	193	1.38	1.54
July	223	24	77.3	.552	.64
August	152	21	58.1	.415	.48
September	95	11	27.1	.194	.22
The Year	3,730	11	291	2.08	28.18

SUSQUEHANNA BASIN—STATION NO. 18

## BALD EAGLE CREEK AT BEECH CREEK STATION

*Location.*—At three-span steel highway bridge, Beech Creek Station, Pennsylvania Railroad, Clinton County.

*Drainage Area.*—565 square miles.

*Records Available.*—June 24, 1910, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Joshua L. Rupert.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Right bank is high and not subject to overflow; left bank subject to overflow at extremely high stages. Bed is composed of gravel and rocks. Control is at a riffle, about 1,000 feet downstream from the gage, where there is a pronounced fall; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.8 feet at 9 p. m. November 16 (discharge, 9,330 second-feet); minimum, 1.50 feet at 8 a. m. August 12 and from 9 p. m. September 11 to 5 a. m. September 12 (discharge, 133 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation probably permanent except when affected by ice. Rating curve well defined below 800 second-feet and fairly well defined between 800 and 10,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for medium and high stages when they are fair.

Discharge measurements of Bald Eagle Creek at Beech Creek Station during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
47	Nov. 19	J. M. Snavely	6.05	5,260
48	Mar. 9	Geo. Weber	5.82	4,970
49	15	do	4.44	2,880
50	18	do	3.37	1,460
51	19	do	3.27	1,420
52	Apr. 19	do	2.61	678
53	19	do	2.63	662
54	21	do	2.45	626
55	Aug. 13	do	1.70	234



Daily Mean Gage Height, in feet, of Bald Eagle Creek at Beech Creek Station for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.88	2.95	2.64	2.19	3.38	3.30	2.88	3.14	2.96	1.95	2.06	1.72
2	2.00	2.81	2.58	2.20	3.31	3.29	4.40	2.98	2.78	1.91	2.02	1.62
3	1.92	2.72	2.48	2.14	3.36	3.14	4.28	2.90	2.66	1.98	1.81	1.69
4	2.08	2.58	2.46	2.12	3.66	2.91	3.96	2.90	2.92	1.92	1.80	1.66
5	2.35	2.62	2.38	2.10	3.46	2.92	4.04	3.12	3.95	1.90	1.78	1.62
6	3.00	2.48	2.55	2.09	3.42	3.26	4.10	2.87	3.34	1.88	1.71	1.61
7	2.78	2.36	2.54	2.00	3.53	4.18	4.03	2.74	3.10	1.93	1.72	1.61
8	2.58	2.31	2.72	1.96	3.30	6.38	3.75	2.67	2.96	2.04	1.78	1.62
9	2.39	2.60	2.58	2.00	3.20	5.70	3.60	2.59	2.80	1.90	1.82	1.61
10	2.32	3.51	2.48	2.05	3.13	4.72	3.45	2.62	2.68	1.85	1.74	1.60
11	2.28	3.03	2.50	2.24	3.05	4.26	3.16	2.65	2.60	1.82	1.62	1.56
12	2.26	2.90	2.44	2.28	2.95	4.17	3.00	2.52	2.46	1.80	1.58	1.51
13	2.25	2.79	2.39	2.30	2.82	4.28	2.86	2.46	2.40	1.80	1.80	1.61
14	2.26	2.71	2.52	2.30	2.86	4.84	2.74	2.45	3.00	1.75	1.74	1.61
15	2.22	2.62	2.39	2.22	3.12	4.38	2.62	2.82	2.72	1.81	1.96	1.62
16	2.14	5.30	2.22	2.15	3.11	3.92	2.56	2.70	2.42	1.81	1.79	1.60
17	2.19	6.34	2.20	2.20	3.39	3.60	2.58	2.66	2.32	1.81	1.76	1.58
18	2.30	4.75	2.22	2.19	4.25	3.40	2.50	2.68	2.26	1.80	1.82	1.61
19	2.62	5.75	2.85	2.18	4.26	3.39	2.52	4.25	2.39	1.70	1.92	1.72
20	2.65	4.88	2.85	3.25	3.88	4.36	2.52	4.63	2.55	1.71	1.94	1.60
21	2.68	4.22	2.85	4.68	3.64	6.78	2.44	3.90	2.36	1.92	2.08	1.60
22	2.61	3.74	2.85	5.30	3.40	6.22	4.45	3.56	2.30	1.92	1.96	1.56
23	2.45	3.44	2.45	5.80	3.45	4.92	3.72	3.95	2.26	2.43	1.74	1.56
24	2.70	3.20	2.38	4.60	3.80	4.24	3.48	4.30	2.21	2.05	1.78	1.55
25	4.20	3.02	2.32	3.76	3.78	3.82	3.36	5.65	2.20	1.96	1.75	1.54
26	4.15	2.92	2.31	3.40	4.09	3.56	3.16	5.04	2.18	1.85	1.72	1.55
27	3.19	3.04	2.20	3.00	3.89	3.48	3.88	4.41	2.12	1.82	1.64	1.55
28	2.95	2.68	2.20	3.08	3.52	3.29	3.76	3.92	2.06	1.85	1.69	1.53
29	2.80	2.51	2.22	3.05	-----	3.12	3.47	3.56	2.00	1.76	1.79	1.52
30	2.70	2.75	2.16	3.32	-----	3.00	3.32	3.35	2.00	1.80	1.76	1.52
31	2.95	-----	2.20	3.63	-----	2.92	-----	3.20	-----	1.94	1.72	-----

NOTE—Stage-discharge relation Dec. 6-9, 19-22 and Jan. 9-20 affected by ice.

Daily discharge, in second-feet, of Bald Eagle Creek at Beech Creek Station for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	1,070	798	460	1,530	1,420	1,020	1,220	1,070	320	373	214
2	346	926	755	460	1,420	1,420	2,790	1,120	926	299	346	176
3	304	840	675	430	1,530	1,220	2,650	1,020	798	336	253	202
4	400	755	638	400	1,880	1,020	2,260	1,020	1,020	304	248	191
5	564	755	600	400	1,640	1,020	2,260	1,220	2,260	294	240	176
6	1,120	675	550	400	1,530	1,420	2,390	973	1,420	285	210	172
7	926	564	500	346	1,640	2,520	2,260	883	1,220	310	214	172
8	755	528	550	325	1,420	6,120	2,000	798	1,070	373	240	176
9	600	755	550	320	1,320	4,800	1,760	755	926	294	257	172
10	528	1,640	675	300	1,220	3,210	1,530	755	840	271	223	168
11	528	1,120	675	300	1,120	2,650	1,320	798	755	257	176	154
12	494	1,020	638	280	1,070	2,520	1,120	675	638	248	161	136
13	494	926	600	280	926	2,650	973	638	600	248	172	172
14	494	840	675	260	973	3,350	883	638	1,120	227	223	172
15	460	755	600	240	1,220	2,790	755	926	840	253	325	176
16	430	4,110	460	240	1,220	2,130	715	840	600	253	244	168
17	460	5,920	460	240	1,530	1,760	755	798	528	253	231	161
18	528	3,350	460	260	2,520	1,530	675	840	494	248	257	172
19	755	4,980	460	300	2,650	1,530	675	2,520	600	206	304	214
20	798	3,500	600	550	2,130	2,790	675	3,070	715	210	315	168
21	840	2,520	700	3,210	1,760	6,990	638	2,130	564	304	400	168
22	755	1,880	700	4,110	1,530	5,720	2,790	1,760	528	304	325	154
23	638	1,330	638	4,980	1,530	3,500	1,880	2,260	494	638	223	154
24	840	1,320	600	3,070	2,000	2,520	1,640	2,650	460	373	240	150
25	2,520	1,120	528	2,000	2,000	2,000	1,530	4,620	460	325	227	147
26	2,520	1,020	528	1,530	2,390	1,760	1,320	3,650	460	271	214	150
27	1,320	1,120	460	1,120	2,130	1,640	1,530	2,790	400	257	183	150
28	1,070	840	460	1,220	1,640	1,420	2,000	2,130	373	271	202	144
29	926	675	460	1,120	-----	1,220	1,640	1,760	346	231	244	140
30	840	883	430	1,420	-----	1,120	1,420	1,530	346	248	231	140
31	1,070	-----	460	1,760	-----	1,020	-----	1,320	-----	315	214	-----

NOTE—Discharge estimated Dec. 6-9, 19-22 and Jan. 9-20, because of ice, from weather records, study of gage height graph and comparison with similar studies for Pine Creek at Cedar Run, Lycoming Creek near Trout Run and Frankstown Branch Juniata River at Williamsburg.

Monthly discharge of Bald Eagle Creek at Beech Creek Station for the year ending Sept. 30, 1927.

(Drainage area 565 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,520	285	794	1.41	1.63
November	5,920	528	1,600	2.83	3.16
December	798	430	577	1.02	1.18
January	4,980	240	1,040	1.84	2.12
February	2,650	926	1,620	2.87	2.99
March	6,990	1,020	2,480	4.39	5.06
April	2,790	638	1,530	2.71	3.02
May	4,620	638	1,550	2.74	3.16
June	2,260	346	762	1.35	1.51
July	638	206	291	.515	.59
August	400	161	251	.444	.51
September	214	136	167	.296	.33
The Year	6,990	136	1,050	1.86	25.26

#### SUSQUEHANNA BASIN—STATION NO. 19

#### PINE CREEK AT CEDAR RUN

*Location.*—At single-span steel highway bridge, Cedar Run, Lycoming County.

*Drainage Area.*—590 square miles.

*Records Available.*—July 19, 1918, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by C. R. Nivison. Elevation of gage zero 781.96 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is high; left is low, but not subject to overflow. Bed is composed of gravel. Control is at a riffle, where the bed is composed of gravel, about 500 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 6.1 feet at 9 p. m. November 16 (discharge, about 8,990 second-feet); minimum, 0.97 foot at 5 p. m. September 26, 27, 28 and 30 (discharge, 14 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.



**Accuracy.**—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 50 and 2,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages when they are fair.

*Discharge measurements of Pine Creek at Cedar Run during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
26	Nov. 18	J. M. Snively	4.25	3,610
27	Mar. 8	Geo. Weber	5.15	6,230
28	8	do	5.27	6,580
29	14	do	6.08	8,910
30	17	do	4.10	3,650
31	Apr. 20	do	2.01	551
32	Aug. 15a	do	1.70	323
33	15c	do	1.70	328

a measurement made by wading 2,500 feet upstream from gage.

*Daily Mean Gage Height, in feet, of Pine Creek at Cedar Run for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.83	2.76	2.38	2.39	3.04	2.66	2.39	2.88	2.51	1.31	1.30	1.18
2	1.78	2.57	2.35	2.25	2.84	2.58	2.51	2.70	2.37	1.32	1.32	1.17
3	1.76	2.41	2.28	2.20	2.81	2.47	2.44	2.57	2.32	1.35	1.26	1.14
4	1.68	2.42	2.19	2.30	3.06	2.32	2.40	2.70	2.30	1.34	1.19	1.09
5	1.65	2.36	2.12	2.36	2.76	2.25	2.60	3.62	2.55	1.30	1.18	1.08
6	2.03	2.28	2.02	2.32	2.66	2.28	2.82	3.16	2.36	1.28	1.18	1.05
7	1.90	2.18	2.11	2.26	2.68	2.42	3.28	3.00	2.19	1.34	1.17	1.05
8	1.82	2.15	2.19	2.14	2.51	4.52	3.18	2.76	2.11	1.36	1.17	1.06
9	1.78	2.12	2.14	2.10	2.48	4.42	3.08	2.63	2.01	1.33	1.26	1.02
10	1.72	2.70	2.10	2.18	2.46	3.94	2.92	2.62	1.89	1.30	1.26	1.02
11	1.82	2.37	2.02	2.21	2.41	3.95	2.75	2.50	1.88	1.32	1.16	1.03
12	1.76	2.34	2.20	2.18	2.38	4.02	2.58	2.38	1.81	1.26	1.12	1.04
13	1.68	2.30	2.29	2.23	2.28	4.72	2.48	2.31	1.76	1.23	1.10	1.06
14	1.64	2.28	2.14	2.28	2.23	5.92	2.32	2.26	1.80	1.22	1.17	1.06
15	1.61	2.21	2.19	2.24	2.28	5.48	2.22	2.40	1.82	1.21	1.52	1.07
16	1.56	3.96	2.10	2.26	2.24	4.58	2.15	2.36	1.68	1.27	1.35	1.10
17	1.60	5.20	2.06	2.24	2.51	4.10	2.15	2.32	1.62	1.26	1.23	1.11
18	1.66	4.20	2.20	2.24	3.36	4.16	2.12	2.37	1.58	1.24	1.28	1.12
19	1.69	4.55	2.18	2.34	3.04	4.35	2.07	2.50	1.66	1.24	1.25	1.11
20	1.73	3.92	2.42	2.92	2.96	4.02	2.01	2.61	2.04	1.23	1.29	1.02
21	1.86	3.48	2.56	3.82	2.83	5.00	1.95	2.55	1.79	1.22	1.32	1.00
22	1.81	3.21	2.62	4.20	2.71	5.23	2.48	2.54	1.66	1.19	1.28	1.00
23	1.78	2.94	2.50	4.16	2.69	4.37	2.38	2.75	1.59	1.38	1.18	1.00
24	2.01	2.73	2.42	3.78	3.12	3.76	2.27	3.56	1.56	1.41	1.16	.98
25	3.28	2.59	2.32	3.30	3.36	3.35	2.27	4.32	1.52	1.32	1.11	.98
26	3.22	2.45	2.30	3.11	3.46	3.10	2.32	4.34	1.56	1.26	1.09	.98
27	2.96	2.62	2.22	2.94	3.04	2.92	2.95	4.08	1.51	1.23	1.08	.98
28	2.74	2.30	2.26	2.57	2.79	2.80	3.48	3.57	1.46	1.22	1.09	.98
29	2.60	2.26	2.50	2.56	2.64	3.36	3.20	1.38	1.22	1.16	1.16	.98
30	2.41	2.41	2.44	2.86	2.53	3.13	2.95	1.36	1.22	1.30	1.30	.98
31	2.74	2.40	3.40	2.48	2.80	2.80	2.80	1.27	1.22	1.22	1.22	

NOTE—Stage-discharge relation Dec. 7 to Jan. 21 affected by ice.

*Daily discharge, in second-feet, of Pine Creek at Cedar Run for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	410	1,240	872	360	1,570	1,120	872	1,430	970	115	110	67
2	377	1,020	825	380	1,360	1,370	970	1,180	825	120	120	64
3	364	872	778	380	1,300	821	921	1,020	778	134	95	55
4	312	872	688	380	1,720	778	872	1,180	778	129	70	40
5	294	825	606	380	1,240	733	1,070	2,570	1,020	110	67	38
6	568	778	530	380	1,120	778	1,300	1,880	825	103	67	30
7	458	688	550	360	1,180	872	2,040	1,570	688	129	64	30
8	404	647	500	360	970	4,520	1,880	1,240	606	139	64	33
9	377	606	460	340	970	4,280	1,720	1,180	530	124	95	23
10	337	1,180	460	320	921	3,180	1,430	1,070	451	110	95	23
11	404	825	500	320	872	3,390	1,240	970	444	120	61	26
12	364	825	550	300	872	3,390	1,070	872	397	95	49	28
13	312	778	600	260	778	5,030	970	778	364	84	43	33
14	289	778	600	260	733	8,410	778	733	390	80	64	33
15	271	688	600	220	778	7,290	688	872	404	77	221	36
16	243	3,390	550	200	733	4,780	647	825	312	99	134	43
17	265	6,400	500	200	970	3,600	647	778	277	95	84	46
18	300	3,820	500	200	2,260	3,820	606	825	254	88	103	49
19	318	4,780	500	260	1,570	4,280	568	970	300	88	92	46
20	344	3,180	550	550	1,500	3,390	530	1,070	568	84	106	23
21	431	2,380	500	1,700	1,360	5,830	494	1,020	389	80	120	18
22	397	1,880	460	3,820	1,180	6,400	970	1,020	300	70	103	18
23	377	1,500	420	3,820	1,180	4,280	872	1,240	260	148	67	18
24	530	1,240	400	2,970	1,720	2,970	733	2,570	243	163	61	15
25	2,040	1,070	380	2,040	2,200	2,200	733	4,050	221	120	46	15
26	1,880	921	340	1,720	2,380	1,720	778	4,050	243	95	40	15
27	1,500	1,070	320	1,500	1,570	1,430	1,500	3,600	216	84	38	15
28	1,240	778	320	1,020	1,300	1,300	2,380	2,570	189	80	40	15
29	1,070	733	320	1,020	1,120	1,120	2,200	1,880	148	80	61	15
30	872	872	320	1,360	1,020	1,020	1,720	1,500	139	80	110	15
31	1,240	360	2,200	970	1,300	1,300	1,300	1,300	99	80	80	

NOTE—Discharge Dec. 7 to Jan. 21 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Lycoming Creek near Trout Run, Loyalsock Creek at Loyalsock, Towanda Creek near Monroeton, Lackawanna River at Moosic and Fishing Creek at Bloomsburg.

*Monthly discharge of Pine Creek at Cedar Run for the year ending Sept. 30, 1927.*

(Drainage area 590 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,040	243	600	1.02	1.18
November	6,400	606	1,550	2.63	2.93
December	872	320	512	.868	1.00
January	3,820	200	954	1.62	1.87
February	2,380	733	1,290	2.19	2.28
March	8,410	733	3,060	5.19	5.98
April	2,380	494	1,110	1.88	2.10
May	4,050	733	1,540	2.61	3.01
June	1,020	139	451	.764	.85
July	163	70	104	.176	.20
August	221	38	82.9	.141	.16
September	67	15	30.8	.052	.06
The Year	8,410	15	940	1.59	21.62



## SUSQUEHANNA BASIN—STATION NO. 20

## LYCOMING CREEK NEAR TROUT RUN

*Location.*—At single-span steel highway bridge about two and one-half miles upstream from Trout Run, Lycoming County.

*Drainage Area.*—185 square miles.

*Records Available.*—December 4, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by E. L. Apker. Elevation of gage zero 693.4 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—The right bank overflows during extremely high stages; the left is high and does not overflow. The bed is composed of gravel and large stones. Control is at a riffle about 100 feet downstream from the gage, where the bed is composed of gravel; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year 16.3 feet, determined by levels from high water mark. It was estimated from hydrograph that it took place at 11 a. m. November 16 (discharge, about 18,700 second-feet); minimum, 1.70 feet at 6.10 a. m. September 27 (discharge, 14 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined from 30 to 3,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Discharge measurements of Lycoming Creek near Trout Run during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
59	Nov. 29	Geo. Weber	3.17	397
60	Mar. 10	do	4.14	833
61	16	do	5.34	1,600
62	16	do	5.29	1,560
63	Apr. 19	do	2.63	191
64	19	do	2.63	189
67	Aug. 12a	do	1.84	28.0
66	12a	do	1.84	26.6
65	12a	do	1.84	25.8

a measurement made by wading 800 feet upstream from gage.

*Daily Mean Gage Height, in feet, of Lycoming Creek near Trout Run for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.76	4.15	3.26	2.23	3.12	3.16	3.06	3.48	3.18	2.24	2.06	1.76
2	2.68	3.88	3.12	2.22	3.06	2.88	3.16	3.38	3.10	2.20	2.02	1.77
3	2.60	3.70	2.95	2.24	3.08	3.10	3.06	3.28	2.97	2.18	1.99	1.78
4	2.57	3.42	3.05	2.26	3.50	3.02	3.00	3.23	3.20	2.15	1.96	1.84
5	2.70	3.24	2.88	2.26	3.11	2.86	3.36	3.23	3.18	2.11	1.95	1.82
6	3.92	3.12	2.98	2.24	3.02	3.00	3.60	3.02	3.02	2.10	1.92	1.80
7	3.40	2.98	2.93	2.22	2.92	3.02	3.62	2.95	2.92	2.15	1.92	1.80
8	3.20	2.86	2.88	2.26	2.84	4.95	3.48	2.84	2.81	2.23	1.92	1.78
9	2.98	3.65	2.82	2.42	2.82	4.50	3.31	3.01	2.70	2.14	1.94	1.76
10	2.88	4.88	2.74	2.45	2.88	4.24	3.24	2.96	2.59	2.06	1.92	1.77
11	3.20	4.58	2.67	2.38	2.82	4.54	3.10	2.98	2.50	2.06	1.88	1.79
12	3.05	4.14	2.59	2.28	2.68	5.35	3.02	2.74	2.45	2.02	1.89	1.78
13	2.93	3.74	2.56	2.22	2.62	7.50	2.96	2.72	2.40	2.00	1.87	1.80
14	2.82	3.49	2.62	2.20	2.75	7.60	2.84	2.72	2.45	1.98	1.92	1.78
15	2.71	3.46	2.67	2.22	2.68	6.28	2.78	2.92	2.42	1.98	1.90	1.77
16	2.66	11.16	2.68	2.48	2.63	5.52	2.75	2.90	2.35	2.00	1.87	1.77
17	2.64	7.38	2.64	2.34	3.05	5.20	2.72	2.88	2.28	1.98	1.84	1.75
18	2.85	5.27	2.64	2.26	3.80	5.50	2.63	2.94	2.18	1.98	1.82	1.76
19	2.73	6.09	2.64	2.34	3.65	5.16	2.62	3.17	2.66	1.95	1.84	1.76
20	3.05	5.05	2.62	2.75	3.52	4.98	2.60	3.15	3.79	1.92	1.86	1.74
21	3.50	4.40	2.55	3.45	3.45	5.74	2.58	2.98	3.12	1.92	1.88	1.74
22	3.20	4.05	2.51	3.89	3.24	5.20	5.68	2.83	2.80	1.94	1.87	1.75
23	2.98	3.70	2.44	3.88	3.18	4.50	4.81	3.18	2.65	2.01	1.84	1.74
24	3.48	3.41	2.40	3.56	3.42	4.15	4.19	4.85	2.60	1.99	1.82	1.73
25	5.32	3.24	2.55	3.24	3.42	3.83	3.82	4.50	2.53	1.96	1.80	1.74
26	4.95	3.12	2.32	3.15	3.82	3.64	3.74	6.12	2.64	1.94	1.77	1.74
27	4.63	3.58	2.34	2.96	3.38	3.50	4.00	4.55	2.52	1.90	1.74	1.70
28	4.28	3.30	2.32	3.06	3.35	3.34	4.30	4.20	2.42	1.90	1.78	1.72
29	3.95	3.16	2.30	3.05	3.32	4.07	3.88	2.34	1.92	1.80	1.72	1.72
30	3.55	3.16	2.28	3.35	3.20	3.78	3.52	2.28	1.90	1.78	1.72	1.72
31	4.18	2.24	3.20	3.15	3.34	2.02	1.79					

NOTE—Stage-discharge relation Dec. 4-9, 17-20, Jan. 9-12, 28 and 29 affected by ice.

*Daily discharge, in second-feet, of Lycoming Creek near Trout Run for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	228	864	410	89	349	369	340	517	389	91	57	19
2	212	706	349	86	340	277	369	473	349	82	50	20
3	182	609	294	91	349	349	340	430	294	78	46	20
4	178	473	260	95	517	312	312	410	389	72	41	26
5	212	410	220	95	349	260	452	410	389	65	40	24
6	706	349	220	91	312	312	562	312	312	63	36	22
7	473	312	220	86	277	312	562	294	277	72	36	22
8	389	260	220	95	260	1,350	517	260	244	89	36	20
9	312	562	220	150	244	1,040	430	312	212	71	39	19
10	277	1,280	228	150	277	864	410	294	182	57	36	20
11	389	1,100	197	150	244	1,040	349	312	154	57	31	21
12	340	809	182	150	212	1,620	312	228	141	50	32	20
13	294	609	178	86	182	3,590	294	212	128	47	30	22
14	244	517	182	82	228	3,700	260	212	141	44	36	20
15	212	495	197	86	212	2,380	244	277	133	44	33	20
16	197	8,640	212	149	197	1,700	228	277	116	47	30	20
17	197	3,480	180	114	340	1,480	212	277	100	44	26	18
18	260	1,550	150	95	657	1,700	197	294	78	44	24	19
19	228	2,200	150	114	562	1,480	182	369	197	40	26	19
20	340	1,350	180	228	517	1,350	182	369	657	36	29	17
21	517	985	178	495	495	1,860	182	312	349	36	31	17
22	389	757	154	706	410	1,480	1,860	260	244	39	30	18
23	312	609	138	706	389	1,040	1,220	389	197	49	26	17
24	517	473	128	562	473	864	864	1,220	182	46	24	16
25	1,550	410	116	410	473	657	657	1,040	178	41	22	17
26	1,350	349	109	369	657	562	609	2,200	197	39	20	17
27	1,100	562	114	294	473	517	757	1,100	154	33	17	14
28	923	430	109	260	452	452	923	864	133	33	20	16
29	757	369	104	280	430	809	706	114	36	22	16	16
30	562	369	100	452	389	657	517	100	33	20	16	16
31	864	91	389	369	452	50	21					

NOTE—Discharge Dec. 4-9, 17-20, Jan. 9-12, 28 and 29 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Pine Creek at Cedar Run, Loyalsock Creek at Loyalsock, Fishing Creek at Bloomsburg and Frankstown Branch Juniata River at Williamsburg.



Monthly discharge of Lycoming Creek near Trout Run for the year ending Sept. 30, 1927.

(Drainage area 185 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,550	178	475	2.57	2.96
November	8,640	260	1,060	5.73	6.39
December	410	91	187	1.01	1.16
January	706	82	232	1.25	1.44
February	657	182	373	2.02	2.10
March	3,700	277	1,100	5.95	6.86
April	1,860	182	510	2.76	3.08
May	2,200	212	503	2.72	3.14
June	657	78	224	1.21	1.35
July	91	33	52.5	.284	.33
August	57	17	31.2	.169	.19
September	26	14	19.1	.103	.11
The Year	8,640	14	397	2.15	29.11

#### SUSQUEHANNA BASIN—STATION NO. 21

#### WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT

*Location.*—At five-span steel highway bridge, Market Street, Williamsport, Lycoming County.

*Drainage Area.*—5,670 square miles.

*Records Available.*—March 1, 1895, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Miss Veronica E. April. Elevation of gage zero 494.55 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and rocky. Bed is composed of silt and gravel; shifts slightly. Control probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 18.7 feet observed at 8.30 a. m. January 22 (discharge, about 117,000 second-feet); minimum, 0.16 foot from 5.30 p. m. September 29 to 5.30 p. m. September 30 (discharge, 762 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 2,000 second-feet and

well defined between 2,000 and 120,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for low stages when they are fair.

Discharge measurements of West Branch Susquehanna River at Williamsport during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
57	Sept. 16	J. M. Snively	Feet 0.45	Sec.-ft. 972

Daily Mean Gage Height, in feet, of West Branch Susquehanna River at Williamsport for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.39	5.48	4.18	2.03	6.63	6.05	4.43	6.24	5.04	1.25	0.86	0.56
2	3.05	5.31	4.03	2.12	5.82	5.60	4.80	5.26	4.59	1.13	1.03	.52
3	2.91	5.15	3.73	1.93	5.46	5.22	6.50	4.78	4.05	1.10	1.82	.51
4	2.78	4.79	3.62	1.84	5.43	4.95	7.30	4.36	3.67	1.03	1.53	.47
5	3.15	4.43	3.35	1.92	5.92	4.47	6.78	4.48	4.96	.96	1.14	.42
6	4.80	4.15	2.50	1.95	5.65	4.24	7.12	4.91	6.19	.89	.93	.39
7	4.52	3.85	2.35	1.97	5.38	4.60	7.72	4.68	5.74	.89	.79	.33
8	4.29	3.57	2.63	1.69	5.95	8.00	7.83	4.29	5.02	1.04	.78	.29
9	3.82	3.55	3.24	1.38	5.47	13.15	7.30	4.06	4.57	1.05	.82	.26
10	3.48	4.90	3.48	1.21	5.07	11.40	6.31	3.91	3.96	.99	.88	.26
11	3.29	4.86	3.26	1.19	4.85	9.70	5.65	3.80	3.64	.91	.98	.23
12	3.39	4.64	3.19	1.23	4.60	9.06	5.09	3.62	3.30	.84	.77	.20
13	3.22	4.27	3.12	1.35	4.27	9.55	4.59	3.29	2.95	.77	.67	.23
14	3.04	4.05	3.03	1.43	4.14	12.03	4.14	3.10	2.78	.75	.72	.32
15	2.86	3.90	3.13	1.49	4.10	12.70	3.78	3.26	3.00	.70	.69	.38
16	2.68	8.00	3.23	1.37	5.20	10.68	3.42	3.47	2.94	.68	.75	.46
17	2.52	13.23	2.83	1.32	5.75	8.78	3.23	3.81	2.74	.70	.93	.40
18	2.51	10.98	2.88	1.27	7.10	8.00	3.19	3.98	2.37	.68	.97	.40
19	2.73	11.22	2.51	1.40	8.10	7.93	3.06	4.63	2.22	.66	.90	.32
20	3.11	10.38	2.17	1.84	7.75	8.49	2.88	7.14	2.71	.60	.79	.30
21	3.81	9.20	2.33	6.30	6.95	11.94	2.75	8.15	2.74	.59	.87	.26
22	3.70	7.63	2.94	13.45	6.10	15.27	4.55	7.00	2.58	.63	.95	.23
23	3.59	6.59	3.12	14.20	5.62	12.45	5.91	6.92	2.11	.77	.99	.21
24	3.55	5.82	2.84	12.30	5.85	9.84	5.89	8.10	1.89	1.24	1.12	.23
25	5.21	5.16	2.56	9.40	6.84	8.11	5.31	10.00	1.79	1.82	.90	.23
26	7.80	4.75	2.66	7.44	7.75	7.02	4.92	12.19	1.80	1.40	.73	.26
27	7.67	4.57	2.47	5.66	7.60	6.31	5.14	10.67	1.75	1.14	.72	.22
28	6.61	4.45	2.18	4.75	6.85	5.76	6.91	8.89	1.65	.90	.69	.18
29	5.75	4.06	2.14	4.89	-----	5.46	7.69	7.49	1.46	.75	.56	.17
30	5.10	3.99	2.28	5.05	-----	4.90	7.14	6.46	1.36	.72	.64	.16
31	4.83	-----	2.23	6.65	-----	4.64	-----	5.61	-----	.81	.57	-----

NOTE—Stage-discharge relation Jan. 12-21 affected by ice.



Daily discharge, in second-feet, of West Branch Susquehanna River at Williamsport for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,750	15,800	10,400	4,020	20,900	18,100	11,200	19,000	13,600	2,400	1,780	1,209
2	6,560	14,900	9,690	4,260	17,200	16,200	12,800	14,900	11,900	2,220	2,040	1,230
3	6,280	14,500	8,700	3,800	15,800	14,500	20,400	12,800	9,690	2,220	3,580	1,230
4	6,030	12,800	8,380	3,580	15,400	13,600	24,400	11,200	8,700	2,040	2,960	1,180
5	7,140	11,200	7,750	3,800	17,600	11,500	21,900	11,500	13,600	1,950	2,220	1,110
6	12,800	10,400	5,220	4,020	16,200	10,400	23,400	13,200	19,000	1,860	1,950	1,070
7	11,500	9,020	4,980	4,020	15,400	11,900	26,400	12,300	16,700	1,860	1,690	982
8	10,800	8,380	5,470	3,370	18,100	28,000	27,000	10,800	13,600	2,040	1,690	927
9	9,020	8,380	7,140	2,770	15,800	62,000	24,400	10,000	11,900	2,040	1,690	888
10	8,060	13,200	8,060	2,400	14,000	48,000	19,500	9,350	9,690	2,040	1,860	888
11	7,440	13,200	7,440	2,400	12,800	37,400	16,200	9,020	8,380	1,860	2,040	849
12	7,750	11,900	7,140	2,400	11,900	34,000	14,000	8,380	7,440	1,780	1,610	810
13	7,140	10,800	6,850	2,400	10,800	36,800	11,900	7,440	6,560	1,610	1,460	849
14	6,560	9,690	6,560	2,400	10,000	52,400	10,000	6,850	6,000	1,610	1,530	968
15	6,280	9,350	6,850	2,400	10,000	57,800	9,020	7,440	6,560	1,530	1,530	1,050
16	5,730	28,000	7,140	2,400	14,500	43,500	7,750	8,060	6,280	1,530	1,610	1,170
17	5,220	62,000	6,000	2,400	17,200	32,300	7,140	9,020	5,730	1,530	1,950	1,080
18	5,220	45,400	6,280	2,400	23,400	28,000	7,140	9,690	4,980	1,530	1,950	1,080
19	5,730	46,700	5,220	2,400	28,500	27,500	6,850	11,900	4,490	1,460	1,860	968
20	6,850	41,600	4,490	3,400	27,000	30,700	6,280	23,400	5,730	1,380	1,690	940
21	9,020	34,600	4,730	13,000	22,900	51,600	6,000	29,100	5,730	1,380	1,780	888
22	8,700	25,900	6,280	63,700	18,500	81,400	11,900	22,900	5,470	1,460	1,950	849
23	8,380	20,900	6,850	70,900	16,200	55,400	17,600	22,400	4,260	1,610	2,040	823
24	8,380	17,200	6,000	54,600	17,200	38,000	17,600	28,500	3,800	2,400	2,220	849
25	14,500	14,500	5,470	35,700	21,900	28,500	14,900	39,200	3,580	3,580	1,860	914
26	27,000	12,800	5,730	24,900	27,000	22,900	13,200	53,900	3,580	2,770	1,610	888
27	26,400	11,900	5,220	16,700	25,900	19,500	14,000	43,500	3,580	2,220	1,530	836
28	20,900	11,200	4,490	12,800	21,900	17,200	22,400	32,900	3,160	1,860	1,530	786
29	17,200	10,000	4,260	13,200	-----	15,800	26,400	25,400	2,960	1,610	1,300	774
30	14,000	9,690	4,730	13,600	-----	13,200	23,400	20,400	2,770	1,530	1,460	762
31	12,800	-----	4,490	20,900	-----	11,900	-----	16,200	-----	1,690	1,300	-----

NOTE—Discharge Jan. 12-21 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Renovo, North Branch Susquehanna River at Danville and Susquehanna River at Sunbury.

Monthly discharge of West Branch Susquehanna River at Williamsport for the year ending Sept. 30, 1927.

(Drainage area 5,670 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	27,000	5,220	10,200	1.80	2.08
November	62,000	8,380	18,900	3.33	3.72
December	10,400	4,260	6,390	1.13	1.30
January	70,900	2,400	12,900	2.28	2.63
February	28,500	10,000	18,000	3.17	3.30
March	81,400	10,400	31,300	5.52	6.36
April	27,000	6,000	15,800	2.79	3.11
May	53,900	6,850	18,100	3.19	3.68
June	19,000	2,770	7,650	1.35	1.51
July	3,580	1,380	1,890	.333	.38
August	3,580	1,300	1,850	.326	.38
September	1,300	762	965	.170	.19
The Year	81,400	762	12,000	2.12	28.64

SUSQUEHANNA BASIN—STATION NO. 22

## LOYALSOCK CREEK AT LOYALSOCK

*Location.*—At single-span steel highway bridge, Loyalsock, Lycoming County.

*Drainage Area.*—433 square miles.

*Records Available.*—July 27, 1925, to September 30, 1927.

*Gages.*—Automatic water-stage recorder about 15 feet downstream from the left abutment, staff gage attached to outside of automatic gage well, and standard chain attached to downstream side of bridge November 8, 1926. The staff gage is on the stream side of the well; it is sloping from 0 to 6.5 feet and vertical from 6.5 to 14 feet. Recorder inspected and staff and chain gages read by G. H. Pideoe. Elevation of zero of each gage 585.63 feet, United States Geological Survey datum.

*Channel and Control.*—The right bank is high, steep and rocky and does not overflow; the left is low but not subject to overflow except during extremely high stages. Bed is composed of rock and gravel. Control is at the remains of an old dam about 500 feet downstream from the gage, where there is a pronounced change in stream slope and where the bed is composed of compact gravel; probably permanent.

*Extremes of Discharge.*—Maximum stage recorded during the year, 12.3 feet at 8.30 p. m. November 16 (discharge, about 34,000 second-feet); minimum stage recorded, 2.87 feet on September 30 (discharge, 42 second-feet).

*Ice.*—Stage-discharge relation seriously affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Two rating tables used; one applicable to Nov. 16 and the other subsequent to that date; rating curves well defined between 75 and 1,000 second-feet and fairly well defined above and below those limits. Chain gage read to hundredths once daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for estimated periods and extreme stages, when they may be only fair.

Discharge measurements of Loyalsock Creek at Loyalsock during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
7	Nov. 17	J. M. Snively	Feet	Sec.-ft.
8	17	do	7.22	7,610
9	30	do	7.06	8,110
10	Apr. 18	Geo. Weber	4.08	845
11	Aug. 12a	do	3.61	462
12	12a	do	2.98	59.2
			2.98	62.6

a Measurement made by wading 600 feet downstream from gage.



Daily Mean Gage Height, in feet, of Loyalsock Creek at Loyalsock for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.73	4.80	4.13	3.70	4.63	4.05	3.88	4.30	4.14	3.36	3.26	3.20
2	3.55	4.43	4.03	3.70	4.12	3.93	3.90	4.15	3.98	3.32	3.30	3.16
3	3.50	4.25	3.92	3.80	3.97	3.87	3.90	4.07	3.88	3.30	3.28	3.19
4	3.45	4.08	3.91	3.80	4.09	3.85	4.01	4.05	3.90	3.27	3.21	3.28
5	3.68	3.96	3.96	3.80	3.97	3.80	4.30	4.10	4.09	3.25	3.15	3.18
6	6.70	3.84	4.08	3.76	3.88	3.83	4.08	3.96	3.97	3.23	3.10	3.12
7	5.36	3.72	4.20	3.62	3.82	3.81	4.23	3.90	3.85	3.23	3.10	3.07
8	4.52	3.68	3.95	3.51	3.75	4.70	4.15	3.83	3.77	3.25	3.12	3.04
9	4.22	4.08	3.90	3.56	3.70	5.16	4.05	3.80	3.70	3.28	3.11	3.02
10	4.02	6.15	3.90	3.62	3.71	4.91	3.96	3.88	3.63	3.25	3.09	2.98
11	4.13	4.80	3.88	3.81	3.70	4.98	3.90	4.37	3.57	3.23	3.07	2.97
12	3.99	4.40	3.80	3.81	3.66	5.25	3.85	4.10	3.55	3.20	3.02	2.96
13	3.80	4.20	3.76	3.84	3.66	6.22	3.82	4.00	3.50	3.17	3.00	2.96
14	3.80	4.05	3.70	3.83	3.66	7.26	3.75	3.95	3.50	3.15	3.00	2.96
15	3.70	3.98	3.70	3.78	3.67	6.45	3.69	4.31	3.52	3.15	3.02	2.95
16	3.60	8.16	3.78	3.72	3.62	5.68	3.68	4.29	3.49	3.16	3.05	2.95
17	3.60	8.10	3.88	3.93	3.88	5.41	3.63	4.20	3.43	3.18	3.07	2.95
18	3.65	5.98	3.70	3.93	4.43	5.46	3.64	4.16	3.40	3.17	3.06	2.95
19	3.77	6.74	3.52	3.98	4.53	5.31	3.64	4.27	3.51	3.14	3.06	2.95
20	3.92	5.73	3.53	4.31	4.36	5.39	3.61	4.35	4.24	3.12	3.05	2.95
21	4.38	5.20	3.75	5.18	4.35	6.14	3.64	4.20	3.96	3.10	3.07	2.94
22	4.06	4.85	3.89	5.63	4.11	5.60	4.80	4.10	3.76	3.11	3.09	2.93
23	3.90	4.62	3.80	5.29	4.03	4.97	4.88	4.06	3.64	3.12	3.09	2.93
24	3.94	4.45	3.72	4.73	4.24	4.68	4.47	4.98	3.57	3.18	3.06	2.91
25	5.10	4.30	3.71	4.87	4.29	4.45	4.26	5.36	3.49	3.24	3.01	2.90
26	5.10	4.22	3.79	5.78	4.66	4.32	4.28	5.26	3.60	3.17	2.99	2.90
27	4.55	4.42	3.75	5.80	4.38	4.24	4.96	5.25	3.67	3.12	2.98	2.88
28	4.25	4.24	3.70	5.80	4.19	4.14	5.11	4.82	3.53	3.09	2.99	2.88
29	4.05	4.10	3.77	5.80	-----	4.08	4.73	4.54	3.44	3.12	3.12	2.88
30	4.00	4.12	3.75	5.69	-----	4.02	4.48	4.35	3.37	3.17	3.43	2.87
31	4.47	-----	3.68	5.43	-----	3.95	-----	4.22	-----	3.20	3.30	-----

NOTE—Stage-discharge relation Dec. 4 to Jan. 21 and Jan. 25-31 affected by ice.

Daily discharge in second-feet, of Loyalsock Creek at Loyalsock for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	595	1,860	975	260	1,640	865	720	1,150	975	282	216	180
2	448	1,350	865	240	920	765	720	975	810	254	240	160
3	415	1,090	720	240	765	678	720	865	720	240	228	175
4	385	920	650	220	920	675	810	865	720	222	186	228
5	555	765	600	220	765	630	1,150	920	920	210	155	170
6	6,270	678	500	220	720	675	920	765	765	198	130	140
7	2,890	555	460	200	630	630	1,090	720	675	198	130	115
8	1,420	555	420	200	585	1,710	975	675	585	210	140	100
9	1,090	920	380	200	540	2,520	865	630	540	228	135	90
10	810	4,770	380	200	540	2,020	765	720	500	210	125	74
11	975	1,860	380	200	540	2,180	720	1,220	420	198	115	71
12	810	1,280	380	190	500	2,520	675	920	420	180	90	68
13	635	1,030	460	180	500	4,770	630	810	380	165	80	68
14	635	865	460	180	500	8,400	585	765	380	155	80	68
15	555	810	460	180	500	5,340	540	1,150	380	155	90	65
16	480	12,000	420	180	460	3,520	540	1,150	373	160	105	65
17	480	11,600	380	180	720	2,890	500	1,030	331	170	115	65
18	518	4,240	340	190	1,350	3,090	500	975	310	165	110	65
19	595	6,270	300	240	1,490	2,700	500	1,090	380	150	110	65
20	720	3,520	340	460	1,220	2,890	460	1,220	1,090	140	105	65
21	1,280	2,520	460	2,200	1,220	4,500	500	1,030	765	130	115	62
22	865	1,940	650	3,300	920	3,300	1,860	920	585	135	125	59
23	720	1,560	550	2,700	865	2,100	2,020	865	500	140	125	59
24	765	1,350	460	1,780	1,090	1,710	1,350	2,180	420	170	110	53
25	2,350	1,150	420	1,200	1,150	1,350	1,090	2,690	373	204	85	50
26	2,350	1,030	380	1,000	1,640	1,150	1,150	2,700	460	165	77	50
27	1,400	1,280	340	900	1,280	1,090	2,100	2,520	500	140	74	45
28	1,090	1,090	320	1,000	1,030	975	2,350	1,860	420	125	77	45
29	865	920	300	1,300	-----	920	1,780	1,490	338	140	140	45
30	810	920	280	2,000	-----	810	1,420	1,220	289	165	331	42
31	1,350	-----	280	2,200	-----	765	-----	1,030	-----	180	240	-----

NOTE—Discharge Dec. 4 to Jan. 21 and Jan. 25-31 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for West Branch Susquehanna River at Williamsport, Lycoming Creek near Trout Run, Towanda Creek near McNeton and Fishing Creek at Bloomsburg.

Monthly discharge of Loyalsock Creek at Loyalsock for the year ending Sept. 30, 1927.

(Drainage area 433 square miles)

Month	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
November	12,000	555	2,360	5.45	6.08
December	975	280	462	1.07	1.23
January	3,300	180	773	1.79	2.06
February	1,640	460	893	2.06	2.14
March	8,400	630	2,200	5.08	5.86
April	2,350	460	1,000	2.31	2.58
May	2,890	630	1,200	2.77	3.19
June	1,090	289	544	1.26	1.41
July	282	125	180	.416	.48
August	331	74	135	.312	.36
September	228	42	86.9	.201	.22
The Year	12,000	42	913	2.11	28.62

SUSQUEHANNA BASIN—STATION NO. 23

## SUSQUEHANNA RIVER AT SUNBURY

**Location.**—At twenty-eight-span steel bridge, Philadelphia & Reading Railway Company, Sunbury, Northumberland County.

**Drainage Area.**—18,200 square miles.

**Records Available.**—August 9, 1916, to September 30, 1927.

**Gage.**—Vertical staff attached to center of downstream end of first pier. Gage consist of a two inch plank 24 feet long faced with enameled scales graduated to feet and tenths. Read to half-tenths twice daily by W. E. Bayler; during high stages more frequently. Elevation of gage zero 419.00 feet, United States Geological Survey datum.

**Discharge Measurements.**—Made from downstream side of highway bridge about 3,700 feet downstream from the gage.

**Channel and Control.**—Both banks are high but subject to overflow during extreme floods. Bed is composed of gravel and rock. Control is the remaining portion of the old Shamokin Dam about 6,800 feet downstream from the gage; permanent.

**Extremes of Stage.**—Maximum gage height, during the year, estimated from hydrograph, 14.8 feet at 10 a. m. November 17; minimum, 0.85 foot on September 30.

**Ice.**—Stage-discharge relation usually affected by ice.



Discharge measurements of Susquehanna River at Sunbury during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
7	Oct. 28	J. M. Snavely & Geo. Weber	Feet 6.05	Sec.-ft. 59,300

Daily Mean Gage Height, in feet, of Susquehanna River at Sunbury for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.30	4.60	4.10	2.40	6.45	5.68	4.48	5.20	4.98	1.96	1.54	1.60
2	3.05	5.10	4.10	2.40	6.02	5.12	4.40	4.62	4.60	1.89	1.62	1.51
3	2.88	5.35	4.10	2.40	5.60	4.65	4.72	4.20	4.28	1.78	1.85	1.98
4	2.80	4.88	3.95	2.40	5.38	4.38	5.05	3.95	3.85	1.68	2.10	2.38
5	2.68	4.52	3.75	2.30	5.40	4.35	5.05	3.75	3.80	1.59	2.09	2.58
6	4.22	4.25	3.35	2.22	5.25	4.05	5.20	3.88	4.35	1.51	1.85	2.40
7	5.75	3.95	2.90	2.20	4.92	4.12	5.52	3.90	4.35	1.52	1.65	2.00
8	5.15	3.75	2.60	2.02	4.80	5.20	5.95	3.85	3.95	1.62	1.52	1.75
9	4.65	3.60	2.70	1.88	4.62	8.92	5.88	3.60	3.75	1.59	1.46	1.55
10	4.42	4.62	3.25	1.72	4.40	9.90	5.25	3.45	3.55	1.55	1.41	1.50
11	3.90	5.30	3.40	1.70	4.28	8.45	4.78	4.32	3.30	1.55	1.34	1.42
12	3.65	5.15	3.40	1.65	4.30	7.75	4.35	4.62	3.05	1.42	1.32	1.32
13	3.45	4.65	3.25	1.65	3.88	8.18	4.05	4.30	2.75	1.36	1.29	1.26
14	3.32	4.35	3.15	1.65	3.68	9.88	3.78	3.95	2.62	1.31	1.21	1.20
15	3.30	4.05	3.15	1.65	3.52	11.58	3.55	4.08	2.65	1.30	1.35	1.16
16	3.22	6.60	3.02	2.10	3.58	11.52	3.38	4.38	2.58	1.26	1.54	1.18
17	3.08	14.27	2.92	2.80	4.05	10.08	3.22	4.46	2.48	1.25	1.44	1.32
18	2.98	13.10	2.78	2.90	5.10	8.65	3.08	4.38	2.38	1.30	1.44	1.29
19	3.00	12.10	2.68	2.90	6.47	7.62	2.98	4.60	2.28	1.24	1.41	1.21
20	3.00	10.95	2.52	3.17	6.70	7.87	2.88	5.40	2.70	1.19	1.40	1.20
21	3.45	9.28	2.42	3.85	5.95	9.18	2.80	5.88	2.75	1.18	1.40	1.16
22	3.50	7.90	2.32	6.30	5.22	11.55	3.30	5.40	2.55	1.18	1.36	1.01
23	3.85	6.65	-----	9.28	4.65	11.40	4.58	5.00	2.42	1.65	1.31	1.00
24	3.90	5.85	-----	9.52	4.70	9.30	5.24	5.25	2.32	1.88	1.30	.98
25	4.35	5.28	-----	7.75	5.48	7.65	4.88	7.68	2.22	1.80	1.30	.94
26	5.80	4.92	-----	6.50	6.70	6.60	4.48	11.44	2.30	1.78	1.26	.92
27	6.40	4.75	-----	5.50	7.18	5.90	4.53	10.50	2.60	1.59	1.22	.98
28	6.15	4.55	-----	4.65	6.55	5.42	5.42	8.82	2.45	1.55	1.16	.90
29	5.42	4.35	-----	4.50	-----	5.20	6.30	7.50	2.18	1.52	1.19	.88
30	4.80	4.18	-----	4.55	-----	5.20	5.98	6.35	2.02	1.50	1.32	.85
31	4.50	-----	-----	5.12	-----	4.80	-----	5.52	-----	1.50	1.65	-----

NOTE—Gage height Dec. 23-31 unsatisfactory. Stage-discharge relation Jan. 16-20 affected by ice.

## SUSQUEHANNA BASIN—STATION NO. 24

## FRANKSTOWN BRANCH JUNIATA RIVER AT WILLIAMSBURG

*Location.*—At two-span steel highway bridge, Williamsburg, Blair County.

*Drainage Area.*—295 square miles.

*Records Available.*—October 24, 1916, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by R. E. Rhule. Elevation of gage zero 831.78 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high; left is steep and rocky and does not overflow; right overflows during extremely high stages. Bed is composed of mud, gravel and small boulders. Control for low stages is a water main crossing the stream diagonally about 150 feet downstream from the gage; permanent. Medium and high stage control is at the first of a series of riffles about 450 feet downstream from the water main; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 9.3 feet at 8 p. m. January 22 (discharge, 5,360 second-feet); minimum 1.70 feet from 8 a. m. September 27 to 4 p. m. September 28 (discharge, 94 second-feet).

*Ice.*—Stage-discharge relation rarely affected by ice.

*Regulation.*—During low flows a part of the stream discharge may be held in storage, temporarily, at some of the dams upstream from the station.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined between 70 and 2,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for extremely high stages when they are fair.

Discharge measurements of Frankstown Branch Juniata River at Williamsburg during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
24	Sept. 6	J. M. Snavely	Feet 1.70	Sec.-ft. 92.6



Daily Mean Gage Height, in feet, of Frankstown Branch Juniata River at Williamsburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.30	2.89	3.03	-----	3.64	3.96	3.58	3.74	3.10	2.18	2.64	1.86
2	2.35	2.69	2.79	-----	3.60	3.86	5.53	3.48	2.94	2.16	2.28	1.84
3	2.44	2.57	2.68	-----	3.45	3.64	4.90	3.32	2.87	2.09	2.06	1.80
4	2.36	2.50	2.77	-----	3.91	3.46	4.80	3.28	4.12	2.02	1.98	1.79
5	2.50	2.45	2.33	-----	3.56	3.57	4.94	3.37	5.94	2.01	1.96	1.74
6	2.70	2.39	2.25	-----	3.59	5.16	4.80	3.07	4.60	2.01	1.90	1.72
7	2.37	2.34	2.48	-----	4.70	6.40	5.12	2.93	4.04	2.27	1.86	1.71
8	2.28	2.30	2.73	-----	4.02	7.78	4.71	2.82	3.68	2.38	1.96	2.05
9	2.19	2.76	2.84	-----	3.82	6.67	4.59	2.90	3.38	2.11	2.17	2.00
10	2.14	4.02	2.74	-----	3.72	5.40	4.23	2.79	3.16	2.00	1.88	1.88
11	2.10	3.35	2.72	-----	3.53	4.85	3.92	2.82	3.00	1.98	1.83	2.40
12	2.10	3.14	2.62	-----	3.32	4.55	3.66	2.68	2.81	1.92	1.83	1.90
13	2.18	3.04	2.82	-----	3.18	4.50	3.54	2.62	2.69	1.88	1.83	1.82
14	2.34	2.92	3.36	-----	3.80	4.98	3.47	2.68	3.49	1.86	2.25	1.82
15	2.12	2.86	3.02	-----	4.70	4.66	3.26	3.25	3.33	1.88	2.72	1.76
16	2.04	4.36	2.44	1.84	4.28	4.26	3.15	2.92	2.81	2.00	2.10	1.74
17	2.13	5.28	2.22	1.90	4.42	3.96	3.14	2.93	2.66	2.10	1.98	1.77
18	2.20	5.05	2.22	1.99	5.08	3.78	3.02	3.22	2.58	2.30	2.10	1.96
19	2.55	7.20	2.25	2.37	4.72	3.83	3.00	4.92	3.90	1.97	2.07	2.71
20	2.42	5.40	2.43	5.32	4.42	5.17	3.12	4.52	3.41	1.86	2.35	2.00
21	2.60	4.56	2.84	7.12	4.30	7.15	2.92	4.05	3.13	1.92	3.13	1.86
22	2.43	4.05	2.70	8.18	3.96	6.48	4.26	3.83	3.00	2.10	2.54	1.81
23	2.38	3.74	2.50	7.27	4.08	5.28	3.75	4.99	2.88	2.95	2.31	1.80
24	2.97	3.52	2.48	5.54	4.67	4.68	3.60	4.13	2.73	2.36	2.16	1.79
25	4.23	3.29	3.00	4.64	4.89	4.27	3.41	5.12	2.60	2.04	2.04	1.76
26	3.73	3.23	3.93	4.09	5.54	4.01	3.30	4.49	2.64	1.99	2.00	1.72
27	3.42	3.34	2.94	3.36	4.98	4.14	4.52	4.18	2.49	1.91	1.95	1.70
28	3.18	2.02	2.82	3.65	4.34	3.74	4.88	3.71	2.37	1.88	1.92	1.70
29	3.02	2.87	2.80	4.68	-----	3.54	4.27	3.50	2.29	1.84	1.92	1.73
30	2.92	3.40	2.50	4.59	-----	3.44	4.02	3.60	2.20	2.08	1.90	1.72
31	2.92	-----	2.34	4.18	-----	3.50	-----	3.34	-----	2.70	1.94	-----

NOTE—Gage height Jan. 1-15 not observed.

Daily discharge, in second-feet, of Frankstown Branch Juniata River at Williamsburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	365	395	200	602	767	602	640	425	193	297	123
2	226	310	337	180	602	724	1,500	564	380	182	215	119
3	248	272	310	190	527	602	1,220	492	351	171	160	112
4	226	260	324	240	724	564	1,160	492	811	150	146	110
5	260	248	226	220	602	602	1,220	527	1,880	150	142	102
6	310	237	204	180	602	1,400	1,160	425	1,050	150	130	98
7	226	226	260	160	1,100	2,270	1,340	380	767	204	123	96
8	215	215	324	150	767	3,560	1,100	337	640	237	142	160
9	193	324	351	140	682	2,520	1,050	365	527	171	182	150
10	182	767	324	130	640	1,520	855	337	457	150	126	126
11	171	527	310	130	564	1,160	724	337	395	146	117	237
12	171	425	254	120	492	1,050	640	310	337	134	117	130
13	193	395	337	120	457	1,000	564	284	310	126	117	115
14	226	365	527	120	682	1,280	564	310	564	123	204	115
15	171	351	395	120	1,100	1,100	492	457	492	126	310	105
16	160	950	248	119	900	900	457	365	337	150	171	102
17	182	1,460	193	130	950	767	425	380	297	171	146	107
18	193	1,280	193	148	1,340	682	395	457	284	215	171	142
19	272	2,960	204	226	1,100	682	395	1,220	724	144	160	310
20	237	1,520	248	1,460	950	1,400	425	1,000	527	123	226	150
21	284	1,050	351	2,870	900	2,960	365	767	425	134	425	123
22	248	767	310	4,000	767	2,350	900	682	395	171	272	114
23	237	640	260	3,050	811	1,460	682	1,280	365	380	215	112
24	380	564	260	1,590	1,100	1,100	602	811	324	226	193	110
25	855	492	395	1,050	1,220	900	527	1,340	284	160	160	105
26	640	457	724	811	1,590	767	492	1,000	297	148	150	98
27	527	492	380	527	1,280	811	1,000	855	260	132	140	94
28	457	395	337	602	900	640	1,220	640	226	126	134	94
29	395	351	337	1,100	-----	564	900	564	215	119	134	100
30	365	527	260	1,050	-----	527	767	602	193	171	130	98
31	365	-----	226	855	-----	564	-----	492	-----	310	138	-----

NOTE—Discharge Jan. 1-15 estimated, because of no gage height record, from discharge of Little Juniata River at Tyrone.

Monthly discharge of Frankstown Branch Juniata River at Williamsburg for the year ending Sept. 30, 1927.

(Drainage area 295 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	855	160	291	0.987	1.14
November	2,960	215	640	2.17	2.42
December	724	193	317	1.07	1.23
January	4,000	119	709	2.40	2.77
February	1,590	457	855	2.90	3.02
March	3,560	527	1,200	4.07	4.69
April	1,590	365	794	2.69	3.00
May	1,340	284	604	2.05	2.36
June	1,880	193	485	1.64	1.83
July	380	119	171	.580	.67
August	425	117	177	.600	.69
September	310	94	125	.424	.47
The Year	4,000	94	528	1.79	24.29

SUSQUEHANNA BASIN—STATION NO. 25

## LITTLE JUNIATA RIVER AT TYRONE

*Location.*—At single-span steel highway bridge, Pennsylvania Avenue, Tyrone, Blair County.

*Drainage Area.*—107 square miles.

*Records Available.*—August 22, 1918, to December 31, 1919, and April 1, 1920, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read to hundredths twice daily by H. W. Waple; during high stages more frequently. Elevation of gage zero 877.04 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both sides of the channel are outlined by retaining walls extending upstream and downstream from the bridge. Bed is composed of gravel and rock. Control is at a riffle about 700 feet downstream from the gage. Stage-discharge relation for medium and high stages is affected by backwater from Bald Eagle Creek, which confluent with the Little Juniata about 200 feet downstream from the gage.

*Extremes of Stage.*—Maximum gage height during the year, 6.6 feet observed at 9 a. m. May 19; minimum, 1.07 feet at 11.10 a. m. September 26.



*Ice.*—Stage-discharge relation usually affected by ice.

*Flood Warning.*—Gage heights obtained at this station are for Flood Warning purposes.

*Discharge measurements of Little Juniata River at Tyrone during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
12	Sept. 7	J. M. Snively	Feet 1.18	Sec.-ft. 25.7
13	7	do	1.18	28.8

*Daily Mean Gage Height, in feet, of Little Juniata River at Tyrone for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.96	2.48	2.34	1.84	2.88	2.90	2.80	2.74	2.52	1.70	2.41	1.31
2	2.38	2.36	2.23	1.64	2.85	2.86	3.75	2.60	2.38	1.70	2.31	1.28
3	2.47	2.26	2.20	1.74	2.78	2.76	3.66	2.50	2.32	1.70	1.97	1.19
4	2.40	2.20	2.18	1.74	2.94	2.79	3.49	2.60	3.95	1.62	1.91	1.18
5	2.56	2.18	2.00	1.71	2.94	2.90	3.51	2.44	3.90	1.58	1.81	1.16
6	2.68	2.10	2.09	1.59	3.02	3.68	3.34	2.31	3.28	1.59	1.83	1.15
7	2.48	2.06	2.08	1.50	3.30	4.30	3.40	2.19	2.99	1.76	-----	1.16
8	2.28	1.99	2.20	1.44	3.11	5.55	3.31	2.12	2.82	1.71	-----	1.79
9	2.16	2.55	2.18	1.31	2.97	4.53	3.30	2.10	2.63	1.56	-----	1.34
10	2.08	2.91	2.09	1.49	2.87	3.93	3.07	2.14	2.50	1.50	-----	1.22
11	-----	2.69	2.06	1.51	2.76	3.72	2.85	2.06	2.35	1.50	-----	1.76
12	-----	2.56	2.02	1.46	2.53	3.71	2.70	1.98	2.24	1.47	-----	1.28
13	-----	2.46	2.14	1.68	2.52	3.82	2.69	1.91	2.14	1.42	-----	1.30
14	-----	2.37	-----	1.50	2.85	4.17	2.51	2.18	2.70	1.37	-----	1.29
15	-----	2.40	-----	1.41	3.18	3.86	2.41	2.35	2.32	-----	1.58	1.22
16	2.20	4.45	1.88	1.24	3.14	3.52	2.34	2.23	2.07	1.49	1.43	1.20
17	1.92	4.02	1.80	1.34	3.20	3.29	2.29	2.23	2.01	1.54	1.37	1.18
18	2.54	4.00	1.68	1.48	3.82	3.15	2.26	2.63	1.95	1.46	1.52	1.18
19	2.46	4.30	1.62	2.03	3.52	3.38	2.23	5.25	2.65	1.35	1.46	1.34
20	2.46	3.68	1.82	3.03	3.36	4.15	2.29	4.00	2.36	1.35	1.67	1.20
21	2.20	3.28	2.12	3.86	3.13	5.85	2.24	3.42	2.26	1.48	1.70	1.18
22	2.12	2.99	1.96	4.95	2.98	4.90	2.44	3.16	2.23	2.11	1.52	1.14
23	2.10	2.82	1.83	4.55	3.11	4.02	2.59	3.42	2.16	2.47	1.50	1.14
24	3.40	2.66	1.79	3.78	3.40	3.60	2.58	3.18	2.08	1.73	1.48	1.11
25	4.18	2.56	2.02	3.34	3.44	3.34	2.53	3.52	2.02	1.52	1.36	1.06
26	3.54	2.61	2.17	2.98	3.55	3.20	2.60	3.32	2.08	1.47	1.35	1.08
27	3.10	2.42	1.88	2.46	3.27	3.22	3.40	3.22	1.93	1.47	1.32	1.12
28	2.78	2.31	1.90	2.53	3.08	3.01	3.40	3.05	1.89	1.47	1.32	1.14
29	2.70	2.24	1.88	2.90	-----	2.86	3.06	2.92	1.80	1.46	1.32	1.13
30	2.68	2.56	1.77	3.62	-----	2.79	2.88	2.86	1.74	2.29	1.37	1.13
31	2.75	-----	1.90	3.11	-----	2.86	-----	2.69	-----	3.21	1.35	-----

NOTE—Gage height Oct. 11-15, Dec. 14, 15, July 15 and Aug. 7-14 not observed. Stage-discharge relation Dec. 6-13, 17, Jan. 8 and 10-18 affected by ice.

SUSQUEHANNA BASIN—STATION NO. 26

## RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON

*Location.*—At two-span steel highway bridge, Saxton, Bedford County.

*Drainage Area.*—790 square miles.

*Records Available.*—August 31, 1911, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by George W. Darr. Elevation of gage zero 789.91 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Banks are high but subject to overflow during extremely high stages. Control was at a heavy boulder riffle 350 feet downstream from the gage until about the first of February, 1921, when a new one was formed by the reconstruction of the Huntingdon & Broad Top Mountain Railroad bridge 250 feet downstream from the gage, which was partially washed away during the high flow of November 29, 1921.

*Extremes of Discharge.*—Maximum stage during the year, 8.76 feet observed at 5 p. m. January 22 (discharge, 11,800 second feet); minimum, 1.02 feet at 5 p. m. September 28, 29 and 30 (discharge, 125 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 2,000 second-feet and fairly well defined above. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Discharge measurements of Raystown Branch Juniata River at Saxton during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
60	Sept. 7	J. M. Snively	Feet 1.18	Sec.-ft. 156
61	7	do	1.18	160



Daily Mean Gage Height, in feet, of Raystown Branch Juniata River at Saxton for year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.01	2.39	2.72	2.52	3.10	4.09	2.84	5.60	2.85	1.86	1.86	1.52
2	1.94	2.29	2.44	2.33	2.86	3.70	3.89	4.62	2.73	1.82	2.10	1.50
3	1.92	2.13	2.34	2.24	2.86	3.51	4.59	4.15	2.60	1.79	1.89	1.40
4	1.94	2.01	2.24	2.28	2.79	3.27	4.49	3.82	3.15	1.72	1.68	1.33
5	1.89	1.97	3.10	2.20	3.32	3.18	4.39	4.18	6.05	1.61	1.56	1.28
6	2.03	1.91	5.05	2.75	3.53	3.54	4.19	3.73	5.52	1.57	1.49	1.25
7	2.33	1.80	4.45	4.35	5.50	5.37	4.04	3.49	4.47	1.82	1.45	1.21
8	2.03	1.77	5.00	4.30	5.07	7.00	4.18	3.23	3.93	2.75	1.46	1.26
9	1.61	2.15	5.03	4.28	4.33	6.70	4.03	3.30	3.47	2.83	1.67	1.26
10	1.67	4.65	4.65	4.45	3.99	5.32	4.12	3.18	3.11	2.10	1.63	1.27
11	1.62	3.75	3.31	4.22	3.77	4.60	3.79	3.07	2.86	1.88	1.58	1.32
12	1.59	3.38	2.55	4.13	3.52	4.14	3.62	2.87	2.61	1.76	1.47	1.30
13	1.56	3.23	2.47	4.08	3.28	3.91	3.53	2.71	2.43	1.87	1.41	1.31
14	1.56	3.08	3.80	4.03	3.15	3.77	3.43	2.70	3.45	1.67	1.39	1.26
15	1.55	2.79	3.13	3.69	3.98	4.11	3.28	2.97	5.18	1.56	1.69	1.21
16	1.50	4.40	2.81	3.25	3.45	3.68	3.03	2.99	3.79	1.53	1.88	1.17
17	1.42	6.85	3.93	3.05	4.30	3.49	3.01	2.90	3.31	1.58	1.64	1.15
18	1.42	5.55	4.55	2.97	4.55	3.30	2.93	2.97	2.98	1.57	1.57	1.13
19	1.49	7.60	4.34	2.96	4.87	3.23	2.71	3.50	3.07	1.49	1.52	1.19
20	2.04	6.00	4.33	4.35	4.54	4.60	3.25	3.58	4.31	1.53	1.65	1.15
21	2.37	4.84	4.50	6.35	4.22	5.65	3.20	3.40	3.61	1.43	3.15	1.15
22	2.50	4.13	4.65	7.70	4.01	5.88	4.09	3.17	3.34	1.39	2.63	1.15
23	2.24	3.73	4.35	6.74	3.90	5.00	4.49	3.01	3.09	2.22	2.29	1.13
24	2.23	3.37	3.94	5.41	4.32	4.51	3.92	2.97	2.85	2.63	2.04	1.07
25	3.75	3.16	3.68	4.50	4.73	3.94	3.69	3.03	2.59	1.95	1.93	1.06
26	3.85	2.97	4.65	3.99	5.29	3.65	3.39	3.35	2.46	1.84	1.69	1.04
27	3.52	3.05	3.81	3.41	5.14	3.52	3.47	3.16	2.35	1.70	1.57	1.06
28	3.13	2.88	3.12	3.05	4.54	3.30	3.70	3.05	2.19	1.59	1.53	1.04
29	2.77	2.51	3.04	3.41	-----	3.05	3.38	2.70	2.04	1.49	1.47	1.03
30	2.59	2.51	2.89	3.62	-----	2.90	3.90	2.65	1.94	1.54	1.50	1.03
31	2.49	-----	2.67	3.55	-----	2.79	-----	2.82	-----	1.65	1.56	-----

NOTE—Stage-discharge relation Dec. 5-12 and Dec. 17 to Jan. 19 affected by ice.

Daily discharge, in second-feet, of Raystown Branch Juniata River at Saxton for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	412	625	840	380	1,220	2,410	972	4,800	972	350	350	232
2	391	565	658	380	972	1,910	2,150	3,100	882	330	460	232
3	370	485	595	420	972	1,660	3,100	2,540	765	330	370	204
4	391	412	538	460	925	1,440	2,960	2,030	1,320	294	294	192
5	370	391	480	380	1,440	1,320	2,820	2,540	5,600	262	247	180
6	436	370	460	320	1,660	1,660	2,540	1,910	4,600	247	232	169
7	595	330	460	280	4,600	4,400	2,280	1,660	2,960	330	218	158
8	436	312	440	240	3,850	7,600	2,540	1,320	2,150	882	218	169
9	262	485	440	240	2,680	7,000	2,280	1,440	1,660	972	278	169
10	278	3,100	460	220	2,280	4,200	2,410	1,320	1,220	460	278	169
11	262	2,030	460	200	2,030	3,100	2,030	1,220	972	370	262	180
12	262	1,550	480	200	1,660	2,410	1,780	972	765	312	218	180
13	247	1,320	658	200	1,440	2,150	1,660	840	658	350	204	180
14	247	1,220	2,030	200	1,320	2,030	1,550	840	1,550	278	204	169
15	247	925	1,220	200	2,280	2,410	1,440	1,070	4,000	247	294	158
16	232	2,820	925	220	1,550	1,910	1,120	1,120	2,030	247	370	149
17	204	7,200	600	240	2,680	1,660	1,120	1,020	1,440	262	278	149
18	204	4,800	440	260	3,100	1,440	1,070	1,070	1,120	247	247	149
19	232	8,800	380	420	3,550	1,320	840	1,660	1,220	232	232	158
20	436	5,600	500	2,820	2,960	3,100	1,320	1,780	2,680	247	278	149
21	595	3,400	750	6,400	2,540	4,800	1,320	1,550	1,780	218	1,320	149
22	692	2,410	600	9,050	2,280	5,400	2,410	1,320	1,440	204	802	149
23	538	1,910	460	7,000	2,150	3,700	2,960	1,120	1,220	510	565	149
24	538	1,550	440	4,400	2,680	2,960	2,150	1,070	972	802	436	132
25	2,030	1,320	500	2,960	3,250	2,150	1,910	1,120	765	391	391	132
26	2,030	1,070	1,100	2,280	4,200	1,780	1,550	1,550	658	350	294	132
27	1,660	1,120	750	1,550	3,850	1,660	1,660	1,320	595	294	247	132
28	1,220	1,020	550	1,120	2,960	1,440	1,910	1,120	510	262	247	132
29	882	692	460	1,550	-----	1,120	1,550	840	436	232	218	132
30	765	692	420	1,780	-----	1,020	2,150	802	391	247	232	132
31	692	-----	400	1,780	-----	925	-----	925	-----	278	247	-----

NOTE—Discharge Dec. 5-12 and Dec. 17 to Jan. 19 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Frankstown Branch Juniata River at Williamsburg and Little Juniata River at Tyrone.

Monthly discharge of Raystown Branch Juniata River at Saxton for the year ending Sept. 30, 1927.

(Drainage area 790 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,030	204	586	0.742	0.86
November	8,800	312	1,950	2.47	2.76
December	2,030	380	629	.796	.92
January	9,050	200	1,550	1.96	2.26
February	4,600	925	2,400	3.04	3.17
March	7,600	925	2,650	3.35	3.86
April	3,100	840	1,920	2.43	2.71
May	4,800	802	1,520	1.92	2.21
June	5,600	391	1,580	2.00	2.23
July	972	204	356	.451	.52
August	1,320	204	340	.430	.50
September	232	132	162	.205	.23
The Year	9,050	132	1,290	1.63	22.23

#### SUSQUEHANNA BASIN—STATION NO. 27

#### TUSCARORA CREEK NEAR PORT ROYAL

*Location.*—At single-span steel highway bridge about two miles southwest of Port Royal, Juniata County.

*Drainage Area.*—205 square miles.

*Records Available.*—August 21, 1911, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Stuart Groninger.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are low but not subject to overflow, except during extremely high stages. Bed is composed of gravel and rocks. Control is at a riffle about 500 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 12.8 feet at 10 p. m. November 16 (discharge, about 10,800 second-feet); minimum, 2.20 feet at 6.15 a. m. September 30 (discharge, 27 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.



*Regulation.*—The operation of grist mills above the station may cause variation in stage during low flows.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 15 and 5,000 second feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for extreme stages when they are fair.

*Discharge measurements of Tuscarora Creek near Port Royal during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
37	July 14a	Geo. Weber	Feet 2.46	Sec.-ft. 56.0
38	14a	Theo. Appel	2.52	62.6

a Measurement made by wading 50 feet upstream from gage.

*Daily Mean Gage Height, in feet, of Tuscarora Creek near Port Royal for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.62	3.02	3.45	3.25	3.68	4.32	3.45	4.04	3.70	2.70	4.99	2.79
2	2.58	2.86	3.31	3.15	3.68	4.23	4.12	3.76	3.50	2.63	4.37	2.62
3	2.61	2.74	3.06	3.23	3.63	3.98	4.16	3.65	3.35	2.66	3.81	2.62
4	2.64	2.72	3.18	3.18	3.90	3.82	4.18	3.72	3.97	2.66	3.52	2.50
5	2.71	2.71	3.36	3.15	3.62	3.88	4.25	4.41	5.26	2.62	3.28	2.46
6	3.24	2.64	4.06	3.06	3.44	4.47	4.22	4.16	4.13	2.55	3.35	2.38
7	3.34	2.63	4.10	3.06	3.62	5.95	4.07	3.88	3.75	2.61	3.04	2.36
8	3.01	2.59	3.84	2.96	3.92	8.04	3.86	3.65	3.60	2.85	3.01	2.40
9	2.84	3.06	3.65	2.92	3.66	6.65	3.74	3.60	3.42	2.66	3.06	2.42
10	2.71	4.55	3.50	2.97	3.62	5.46	3.78	3.54	3.30	2.55	2.96	2.52
11	2.66	3.68	3.38	2.88	3.55	4.94	3.58	3.52	3.18	2.57	2.78	2.52
12	2.60	3.34	3.17	2.92	3.46	4.68	3.47	3.34	3.06	2.52	2.78	2.58
13	2.55	3.17	3.22	2.91	3.44	4.62	3.41	3.24	3.00	2.51	2.80	2.46
14	2.60	3.06	3.47	2.96	3.40	4.75	3.40	3.20	3.80	2.40	3.75	2.38
15	2.58	3.02	3.30	2.88	3.78	4.76	3.28	3.40	4.53	2.40	3.80	2.38
16	2.50	8.14	2.99	2.78	4.18	4.40	3.22	3.29	3.58	2.44	3.21	2.38
17	2.46	8.62	2.70	2.90	4.68	4.20	3.30	3.17	3.30	2.77	2.98	2.30
18	2.50	5.66	4.30	2.77	5.07	4.06	3.23	3.16	3.13	2.75	3.09	2.60
19	2.62	7.78	3.86	3.50	4.78	4.07	3.16	4.25	3.38	2.56	3.36	4.18
20	3.01	5.95	3.75	4.33	3.75	4.82	3.36	4.40	3.59	2.40	2.97	3.02
21	3.46	5.04	3.68	5.88	4.12	5.70	3.24	3.84	3.30	2.39	2.91	2.66
22	3.05	4.52	3.58	5.84	4.19	5.78	3.97	3.58	3.12	2.50	2.82	2.55
23	2.86	4.23	3.31	5.61	4.39	4.99	4.38	4.40	3.05	8.00	2.90	2.54
24	2.92	4.01	3.23	4.45	4.66	4.56	3.96	4.08	2.98	5.20	2.90	2.43
25	5.08	3.80	3.22	4.20	4.86	4.29	3.74	6.80	2.90	4.00	2.71	2.39
26	4.28	3.73	3.70	4.04	5.88	4.10	3.64	6.36	2.96	3.51	2.65	2.42
27	3.66	3.95	3.93	3.18	5.30	4.00	4.37	5.30	2.96	3.31	2.60	2.32
28	3.35	3.51	3.50	3.27	4.68	3.80	4.95	4.56	2.78	3.60	2.58	2.34
29	3.15	3.38	3.46	4.59	-----	3.65	4.35	4.20	2.72	3.38	2.68	2.33
30	3.06	3.50	3.28	5.10	-----	3.54	4.10	4.05	2.71	3.73	2.67	2.28
31	2.98	-----	3.18	4.52	-----	3.54	-----	3.90	-----	5.43	3.11	-----

NOTE—Stage-discharge relation Dec. 4-12, 18-25 and Dec. 31 to Jan. 20 affected by ice.

*Daily discharge, in second-feet, of Tuscarora Creek near Port Royal for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	76	140	242	85	315	560	242	445	315	87	95	101
2	71	113	205	75	315	535	465	332	255	77	588	76
3	74	93	150	85	300	425	488	300	218	81	350	68
4	79	90	130	95	385	350	510	315	405	81	255	61
5	89	89	120	90	285	385	535	615	1,140	76	205	56
6	192	79	110	75	242	642	510	488	488	67	218	47
7	218	77	100	60	285	1,640	445	385	332	74	150	44
8	140	72	100	55	385	3,460	368	300	285	112	140	49
9	110	150	160	48	300	2,120	332	285	230	81	150	51
10	89	725	100	44	285	1,280	350	270	205	67	132	63
11	81	315	100	42	270	890	285	255	180	69	100	63
12	73	218	120	40	242	780	242	218	150	63	100	71
13	67	170	180	38	242	725	230	192	140	62	103	56
14	73	150	242	38	230	835	230	180	350	49	332	47
15	71	140	205	38	350	835	205	230	670	49	350	47
16	61	3,560	138	38	510	615	180	205	285	54	180	47
17	56	4,110	87	44	780	510	205	170	205	98	136	37
18	61	1,420	80	50	1,020	445	192	170	170	95	160	73
19	76	3,250	75	60	835	445	170	535	230	68	218	510
20	140	1,640	85	95	332	835	218	615	285	49	134	140
21	242	950	160	1,560	465	1,420	192	368	205	48	122	81
22	150	670	140	1,490	510	1,490	405	285	160	61	106	67
23	113	535	100	1,340	615	950	615	615	150	3,460	120	66
24	124	425	85	642	780	725	405	465	136	1,080	120	53
25	1,020	350	95	510	890	560	332	2,300	120	425	89	48
26	560	332	315	445	1,560	465	300	1,950	132	255	80	51
27	300	405	405	180	1,140	425	588	1,140	132	205	73	39
28	218	255	255	192	780	350	950	725	100	285	71	42
29	170	230	242	725	-----	300	588	510	90	230	84	41
30	150	255	205	1,020	-----	270	465	445	89	332	83	35
31	136	-----	120	670	-----	270	-----	385	-----	1,210	160	-----

NOTE—Discharge Dec. 4-12, 18-25 and Dec. 31 to Jan. 20 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Frankstown Branch Juniata River at Williamsburg and Raystown Branch Juniata River at Saxton.

*Monthly discharge of Tuscarora Creek near Port Royal for the year ending Sept. 30, 1927.*

(Drainage area 205 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,020	56	164	0.800	0.92
November	4,110	72	700	3.41	3.80
December	405	75	155	.756	.87
January	1,560	38	322	1.57	1.81
February	1,560	230	523	2.55	2.66
March	3,460	270	824	4.02	4.64
April	950	170	375	1.83	2.04
May	2,300	170	506	2.47	2.85
June	1,140	89	262	1.28	1.43
July	3,460	48	292	1.42	1.64
August	950	71	195	.951	1.10
September	510	35	74.3	.362	.40
The Year	4,110	35	365	1.78	24.16



## SUSQUEHANNA BASIN—STATION NO. 28

## JUNIATA RIVER AT NEWPORT

*Location.*—At four-span steel highway bridge, Newport, Perry County.

*Drainage Area.*—3,380 square miles.

*Records Available.*—March 21, 1899, to July 14, 1906, and January 7, 1907, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by A. R. Bortel. Elevation of gage zero 363.32 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of hard material. Low-water control is at a riffle about 400 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 14.2 feet at 8 p. m. November 16 (discharge, 41,700 second-feet); minimum, 3.10 feet at 5 p. m. September 25 and 4.30 p. m. September 28 and 29 (discharge, 740 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice and aquatic growth. Rating curve well defined from 400 to 70,000 second-feet. Gage read twice daily to quarter-tenths; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of Juniata River at Newport during the year ending Sept 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
92	Nov. 1	J. M. Snively	4.53a	3,710
93	Mar. 29	do	5.42	6,920
94	29	do	5.42	6,910
95	June 28	Geo. Weber	4.10	3,000
96	July 21	J. M. Snively	3.52	1,480

a Gage height affected by aquatic growth.

*Daily Mean Gage Height, in feet, of Juniata River at Newport for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.18	4.55	4.70	4.00	5.82	6.72	4.90	5.65	5.15	3.85	5.82	3.72
2	3.92	4.40	4.30	4.16	5.32	6.20	5.08	6.05	4.96	3.78	5.40	3.85
3	3.82	4.22	4.28	4.05	5.22	5.75	6.00	5.95	4.74	3.75	4.75	3.78
4	3.90	4.06	4.28	3.80	5.22	5.48	6.45	5.58	4.72	3.45	4.32	3.62
5	3.88	4.02	4.30	3.98	5.25	5.90	6.55	5.49	6.10	3.50	4.05	3.49
6	4.32	4.05	4.15	4.00	5.35	5.50	6.55	5.72	7.22	3.68	4.05	3.28
7	4.42	3.95	4.00	3.92	5.05	6.30	6.38	5.42	7.10	3.54	3.90	3.29
8	4.22	3.82	4.75	3.95	5.79	10.35	6.18	5.10	6.08	3.65	3.92	3.52
9	4.00	3.80	4.15	6.00	6.30	12.22	6.00	4.80	5.60	3.75	3.60	3.30
10	4.06	5.05	4.15	6.40	5.80	10.28	5.80	4.62	5.20	3.80	3.88	3.48
11	4.06	5.90	4.22	5.52	5.50	8.52	5.70	4.69	4.95	3.85	3.84	3.60
12	3.70	5.80	4.28	5.15	5.28	7.46	5.45	4.65	4.65	3.70	3.64	3.55
13	3.60	5.10	4.29	5.54	5.08	6.80	5.26	4.46	4.46	3.66	3.68	3.42
14	3.60	4.82	4.30	5.70	4.98	6.92	5.05	4.42	4.46	3.50	3.88	3.49
15	3.68	4.59	4.42	5.32	4.92	7.20	5.00	4.42	5.30	3.55	4.05	3.38
16	3.72	10.06	4.45	4.92	5.75	6.80	4.78	4.72	5.58	3.34	4.22	3.33
17	3.55	13.50	4.38	5.32	6.25	6.30	4.72	4.56	5.28	3.41	4.06	3.28
18	3.52	10.98	4.15	5.10	7.00	5.95	4.64	4.58	4.78	3.78	3.88	3.25
19	3.56	11.55	4.15	5.05	7.04	5.65	4.55	5.00	4.65	3.62	3.95	4.04
20	3.85	11.40	3.72	6.20	7.05	5.95	4.55	6.90	4.85	3.62	3.90	4.06
21	4.05	9.02	3.65	7.70	6.55	7.75	4.50	6.50	5.18	3.50	3.86	3.72
22	4.15	7.45	3.92	9.00	6.22	10.15	4.82	5.72	5.08	3.77	4.32	3.48
23	4.08	6.52	4.32	9.36	6.10	7.95	6.10	6.62	4.55	5.98	4.20	3.24
24	3.85	5.92	4.32	9.36	6.10	7.95	6.10	6.62	4.55	5.98	4.20	3.24
25	4.98	5.55	4.08	7.58	6.70	6.98	5.65	7.45	4.38	4.75	4.01	3.12
26	6.10	5.26	4.35	6.60	7.80	6.38	5.36	9.38	4.55	4.30	3.90	3.28
27	5.82	5.21	4.52	5.75	8.20	5.95	5.32	7.82	4.08	3.92	3.80	3.16
28	5.28	5.08	4.58	5.18	7.56	5.78	6.20	6.61	4.10	3.95	3.70	3.15
29	4.89	4.82	4.62	5.35	-----	5.45	6.40	5.92	4.05	3.95	3.75	3.13
30	4.65	4.76	4.45	6.08	-----	5.18	5.85	5.60	4.00	4.08	3.55	3.25
31	4.55	-----	4.22	6.72	-----	4.95	-----	5.38	-----	5.05	3.78	-----

NOTE—Stage-discharge relation Oct. 1 to Nov. 17 affected by aquatic growth and Dec. 8 to Jan. 3 and Jan. 5-21 by ice.

*Daily discharge, in second-feet, of Juniata River at Newport for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,600	3,800	4,620	1,600	8,080	11,000	5,240	7,440	6,170	2,250	8,080	1,500
2	2,000	3,200	3,430	1,500	6,480	9,360	5,860	8,720	5,550	2,130	6,800	2,250
3	1,800	2,800	3,430	1,700	6,170	8,080	8,720	8,720	4,620	2,020	4,930	2,130
4	2,000	2,600	3,430	2,130	6,170	7,120	10,000	7,440	4,620	1,370	3,430	1,680
5	1,900	2,400	3,430	2,000	6,170	6,480	10,700	7,120	9,040	1,470	2,750	1,450
6	3,000	2,400	3,020	1,700	6,800	7,120	10,700	7,760	12,800	1,900	2,750	1,040
7	3,200	2,200	2,620	1,500	5,550	9,690	10,000	6,800	12,500	1,580	2,370	1,060
8	2,800	1,900	2,200	1,300	8,080	25,100	9,360	5,860	9,040	1,790	2,370	1,470
9	2,200	1,800	2,000	1,100	9,690	32,700	8,720	4,930	7,440	2,020	1,680	1,080
10	2,400	5,200	2,000	900	8,080	24,600	8,080	4,320	6,170	2,130	2,370	1,430
11	2,400	8,000	2,200	800	7,120	17,600	7,760	4,620	5,550	2,250	2,250	1,680
12	1,600	8,000	2,800	800	6,480	13,900	6,800	4,320	4,320	1,900	1,790	1,580
13	1,400	5,500	3,000	750	5,860	11,400	6,480	3,870	3,870	1,790	1,900	1,310
14	1,400	4,600	2,800	750	5,550	11,800	5,550	3,720	3,870	1,470	2,370	1,450
15	1,600	3,800	2,600	750	5,240	12,800	5,550	3,720	6,480	1,580	2,750	1,230
16	1,700	24,000	2,200	750	8,080	11,400	4,930	4,620	7,440	1,160	3,150	1,140
17	1,300	38,000	1,900	750	9,360	9,690	4,620	4,320	6,480	1,290	2,750	1,040
18	1,200	27,600	1,600	800	12,100	8,720	4,320	4,320	4,930	2,130	2,370	990
19	1,300	30,100	1,500	1,000	12,100	7,440	4,320	5,550	4,320	1,680	2,500	2,750
20	1,900	29,200	1,300	1,400	12,100	8,720	4,320	11,800	4,930	1,680	2,370	2,750
21	2,400	19,500	1,300	7,000	10,700	15,000	4,020	10,400	6,170	1,470	2,250	1,900
22	2,600	13,500	1,300	19,500	9,360	24,200	4,930	7,760	5,860	2,020	3,430	1,430
23	2,400	10,400	1,400	26,700	8,720	21,000	8,720	9,360	4,620	11,400	3,720	1,080
24	1,900	8,400	1,700	21,000	9,040	15,800	9,040	10,700	4,320	8,720	3,150	972
25	5,000	7,440	2,200	14,300	11,000	12,100	7,440	13,500	3,720	4,930	2,620	772
26	8,500	6,480	2,800	10,700	15,000	10,000	6,800	21,000	4,320	3,430	2,370	1,040
27	8,000	6,170	3,200	8,080	16,500	8,720	6,480	15,000	2,880	2,370	2,130	836
28	6,000	5,860	3,200	6,170	14,300	8,080	9,360	10,700	2,880	2,500	1,900	820
29	5,000	4,930	2,600	6,800	-----	-----	-----	-----	-----	-----	-----	-----
30	4,000	4,930	2,200	9,040	-----	6,170	8,080	7,440	2,620	2,880	1,580	990
31	3,800	-----	1,800	11,000	-----	5,550	-----	6,800	-----	5,550	2,130	-----

NOTE—Discharge estimated Oct. 1 to Nov. 17, because of aquatic growth, from discharge measurements, and Dec. 8 to Jan. 3 and Jan. 5-21, because of ice, from weather records, study of gage height graph and comparison with similar studies for Frankstown Branch Juniata River at Williamsburg, Raystown Branch Juniata River at Saxton and Susquehanna River at Harrisburg.



Monthly discharge of Juniata River at Newport for the year ending Sept. 30, 1927.  
(Drainage area 3,380 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	8,500	1,200	2,880	0.853	0.98
November	38,000	1,800	9,820	2.91	3.25
December	4,600	1,300	2,450	.725	.84
January	26,700	750	5,300	1.57	1.81
February	16,500	5,240	8,930	2.64	2.75
March	32,700	5,550	12,500	3.70	4.27
April	10,700	4,020	7,230	2.14	2.39
May	21,000	3,720	7,780	2.30	2.65
June	12,800	2,020	5,680	1.68	1.87
July	11,400	1,160	2,690	.796	.92
August	8,060	1,580	2,870	.850	.98
September	2,750	772	1,400	.414	.46
The Year	38,000	750	5,770	1.71	23.17

#### SUSQUEHANNA BASIN—STATION NO. 29

### SUSQUEHANNA RIVER AT HARRISBURG

*Location.*—At fifteen-span steel highway bridge, Walnut Street, Harrisburg, Dauphin County.

*Drainage Area.*—24,100 square miles.

*Records Available.*—January 1, 1891, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by employees of the Department of Forests and Waters and United States Weather Bureau. Elevation of gage zero 289.4 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading and from boat.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of gravel and boulders. A low dam 4,200 feet downstream from the gage, completed on August 29, 1916, is the control for all except high stages.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 17.0 feet at 9 p. m. November 17 (discharge, 323,500 second-feet); minimum, 3.25 feet at 8 a. m. September 29 and 30 (discharge, 4,550 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 4,000 and 300,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying to rating table daily mean gage height, computed from a continuous hydrograph, obtained by plotting gage readings. Results good.

Daily Mean Gage Height, in feet, of Susquehanna River at Harrisburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.79	5.55	5.50	5.30	7.46	7.40	5.82	6.60	6.34	4.00	4.28	3.66
2	4.65	5.77	5.39	5.20	8.00	6.75	5.70	6.20	5.95	3.97	4.32	3.70
3	4.50	6.05	5.43	4.89	7.70	6.25	5.81	5.93	5.65	3.88	4.22	3.68
4	4.40	5.96	5.37	5.12	6.75	5.90	6.16	5.62	5.38	3.78	4.08	3.74
5	4.30	5.66	5.20	5.02	6.60	5.70	6.38	5.43	5.48	3.71	4.10	3.95
6	4.40	5.45	5.33	4.98	6.56	5.61	6.36	5.43	5.80	3.71	4.07	4.10
7	5.70	5.26	5.10	4.79	6.35	5.90	6.50	5.44	5.90	3.67	3.92	4.02
8	6.05	5.09	4.90	4.70	6.19	6.88	6.72	5.46	5.70	3.62	3.81	3.88
9	5.65	4.94	4.79	4.30	6.29	9.18	6.88	5.20	5.42	3.71	3.78	3.76
10	5.55	5.46	4.90	4.30	6.02	11.31	6.60	5.03	5.14	3.71	3.68	3.64
11	5.22	6.30	5.12	4.21	5.79	10.10	6.15	5.10	4.92	3.78	3.64	3.59
12	4.95	6.35	5.26	4.06	5.68	9.00	5.87	5.74	4.77	3.69	3.58	3.55
13	4.83	6.10	5.18	3.99	5.52	8.70	5.62	5.58	4.60	3.60	3.58	3.49
14	4.73	5.70	5.06	4.08	5.38	9.70	5.36	5.37	4.48	3.55	3.61	3.44
15	4.72	5.47	4.94	4.38	5.25	11.50	5.18	5.27	4.70	3.51	3.72	3.46
16	4.65	7.14	4.90	4.35	5.40	12.20	5.06	5.40	4.60	3.50	3.70	3.39
17	4.48	15.63	4.89	4.18	5.60	11.20	4.94	5.57	4.54	3.55	3.75	3.36
18	4.40	15.34	5.84	4.10	6.20	9.80	4.82	5.61	4.36	3.59	3.75	3.48
19	4.39	14.50	6.15	4.20	7.20	8.70	4.72	5.55	4.38	3.59	3.68	3.78
20	4.45	13.25	5.85	4.70	7.87	8.38	4.65	6.10	4.50	3.54	3.66	3.68
21	4.58	11.35	5.90	6.13	7.22	9.35	4.60	6.06	4.76	3.49	3.65	3.59
22	4.88	9.55	5.68	8.71	6.70	11.80	4.80	6.66	4.72	3.45	3.61	3.47
23	5.06	8.20	5.92	10.46	6.25	12.66	5.36	6.28	4.50	5.92	3.69	3.42
24	5.11	7.30	6.25	11.80	6.06	11.00	6.10	6.37	4.40	5.50	3.66	3.32
25	5.30	6.72	6.48	10.32	6.40	9.20	6.30	7.30	4.30	4.60	3.60	3.31
26	6.10	6.30	6.34	8.60	7.60	8.02	5.97	11.45	4.20	4.21	3.55	3.27
27	6.97	6.01	6.05	7.40	8.60	7.18	5.73	11.80	4.20	4.07	3.53	3.27
28	7.00	5.94	6.05	6.29	8.20	6.72	6.10	10.26	4.32	3.96	3.50	3.30
29	6.58	5.75	5.78	5.80	-----	6.37	7.00	8.66	4.20	3.88	3.46	3.25
30	6.00	5.60	5.45	6.22	-----	6.19	7.10	7.60	4.12	3.88	3.48	3.25
31	5.66	-----	5.21	6.90	-----	6.00	-----	6.80	-----	4.06	3.55	-----

NOTE—Stage-discharge relation Dec. 6 to Feb. 17 affected by ice.

Daily discharge, in second-feet, of Susquehanna River at Harrisburg for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25,800	40,900	38,900	17,200	62,200	79,800	45,100	62,200	55,600	13,600	17,900	9,000
2	22,500	45,100	36,900	16,400	71,000	66,600	43,000	53,500	49,300	12,900	17,900	9,600
3	20,900	49,300	36,900	16,400	62,200	53,500	45,100	47,200	40,900	12,200	16,400	9,600
4	19,400	49,300	36,900	15,700	45,100	47,200	53,500	40,900	36,900	10,900	15,000	10,200
5	17,900	43,000	33,000	15,700	49,300	43,000	57,800	36,900	38,900	9,600	15,000	12,900
6	19,400	36,900	29,300	15,700	53,500	40,900	57,800	36,900	45,100	9,600	14,300	15,000
7	43,000	34,900	24,100	15,700	49,300	47,200	60,600	36,900	47,200	9,000	12,200	13,600
8	49,300	31,100	18,600	15,000	49,300	63,800	64,400	28,300	43,000	8,400	10,900	12,200
9	40,900	27,500	17,200	13,600	51,400	119,400	68,800	33,000	36,900	9,600	10,900	10,200
10	40,900	38,900	19,400	12,200	45,100	165,900	62,200	20,300	31,100	9,600	9,600	9,000
11	33,000	55,600	24,100	10,900	40,900	139,200	53,500	31,100	27,500	10,900	9,000	8,400
12	29,300	57,800	29,300	9,600	40,900	115,000	47,200	43,000	25,800	9,600	8,400	7,800
13	25,800	51,400	27,500	9,000	36,900	108,400	40,900	40,900	22,500	8,400	8,400	7,080
14	24,100	43,000	25,800	8,400	34,900	130,400	36,900	36,900	20,900	7,800	8,400	6,480
15	24,100	38,900	22,500	8,400	33,000	170,500	33,000	34,900	24,100	7,200	9,600	6,720
16	22,500	73,200	20,900	8,400	34,900	187,500	31,100	36,900	22,500	7,200	9,600	5,900
17	20,900	281,500	19,400	8,400	38,900	163,600	27,500	40,900	20,900	7,800	10,200	5,600
18	19,400	272,700	17,900	9,000	53,500	132,600	25,800	40,900	18,600	8,400	10,200	6,960
19	19,400	249,500	17,200	9,600	75,400	108,400	24,100	40,900	19,400	8,400	9,600	10,900
20	20,200	213,400	16,400	13,600	90,800	101,800	22,500	51,400	20,900	7,800	9,000	9,600
21	22,500	168,200	16,400	36,900	75,400	123,800	22,500	64,400	25,800	7,080	9,000	8,400
22	27,500	128,200	15,700	101,800	64,400	177,700	25,800	64,400	24,100	6,600	8,400	6,840
23	31,100	97,400	15,700	134,800	53,500	200,200	36,900	55,600	20,900	47,200	9,600	6,240
24	31,100	77,600	16,400	161,300	51,400	159,000	51,400	57,800	19,400	38,900	9,000	5,200
25	34,900	64,400	22,500	128,200	57,800	119,400	55,600	77,600	17,900	22,500	8,400	5,100
26	51,400	55,600	29,300	88,600	84,200	93,000	49,300	168,200	16,400	16,400	7,800	4,730
27	71,000	49,300	27,500	66,600	106,200	75,400	43,000	177,700	16,400	14,000	7,800	4,700
28	71,000	47,200	24,100	45,100	97,400	64,400	51,400	143,600	17,900	12,900	7,200	5,000
29	62,200	45,100	20,900	36,900	-----	57,800	71,000	108,400	16,400	12,200	6,720	4,550
30	49,300	40,900	18,600	43,000	-----	53,500	73,200	84,200	15,000	12,200	6,960	4,550
31	43,000	-----	17,900	53,500	-----	49,300	-----	66,600	-----	14,300	7,800	-----

NOTE—Discharge Dec. 6 to Feb. 17 estimated, because of ice, from relation between stage and chain gages, and weather records, study of gage height graph and comparison with similar studies for Susquehanna River at Sunbury and Holtwood.



Monthly discharge of Susquehanna River at Harrisburg for the year ending Sept. 30, 1927.

(Drainage area 24,100 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	71,000	17,900	33,300	1.38	1.59
November	281,500	27,500	83,600	3.47	3.87
December	38,900	15,700	23,800	.988	1.14
January	161,300	8,400	37,000	1.54	1.78
February	106,200	33,000	57,500	2.39	2.49
March	200,200	40,900	105,000	4.36	5.03
April	73,200	22,500	46,000	1.91	2.13
May	177,700	29,300	60,700	2.52	2.90
June	55,600	15,000	27,900	1.16	1.29
July	47,200	6,600	12,700	.527	.61
August	17,900	6,720	10,400	.432	.50
September	15,000	4,550	8,070	.335	.37
The Year	281,500	4,550	42,100	1.75	23.70

#### SUSQUEHANNA BASIN—STATION NO. 30

#### LITTLE SWATARA CREEK NEAR PINE GROVE

*Location.*—At single-span steel highway bridge, about three-quarters of a mile upstream from mouth of creek and one mile southeast of Pine Grove, Schuylkill County.

*Drainage Area.*—34 square miles.

*Records Available.*—November 18, 1919, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Miss Lottie Mars.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Both banks are of medium height; overflow begins on the right side of the bridge at a stage of 6.7 feet and on the left side at 6.5 feet. The bed is composed of coarse gravel at the gage and control section. The stream is divided by an island 60 feet long, about 200 feet downstream from the gage. Control for the right channel is at the upstream end of the island, and for the left channel at the downstream end. The left channel control was materially changed by a deposit of gravel during the high flow of September 30, 1924.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.3 feet at 5 p. m. November 16 (discharge, about 1,330 second-feet); minimum, 1.14 feet at 7 a. m. September 18 (discharge, 6.0 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation probably permanent except when

affected by ice. Two rating tables used; one applicable to November 16 and the other since that date. Curves well defined below 100 second-feet and fairly well defined between 100 and 500 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages when they are fair.

Discharge measurements of Little Swatara Creek near Pine Grove during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
33	May 16a	Geo. Weber	1.88	49.2
34	16a	do	1.88	51.3
35	26a	do	2.50	138
36	26a	do	2.49	136
37	27a	do	2.30	106
38	27a	do	2.30	100
39	June 29a	J. M. Snively	1.70	34.7
40	29a	do	1.70	35.0
41	Aug. 26b	Geo. Weber	1.19	5.39
42	26b	do	1.19	5.78

a Measurement made by wading 15 feet upstream from gage.  
b Measurement made by wading 60 feet upstream from gage.

Daily Mean Gage Height, in feet, of Little Swatara Creek near Pine Grove for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.70	2.04	2.18	2.71	1.90	2.22	1.87	2.14	1.89	1.66	1.56	1.32
2	1.64	1.96	2.10	2.20	2.08	2.16	1.96	2.07	1.78	1.60	1.60	1.38
3	1.66	1.91	2.06	2.56	1.88	2.10	1.96	1.99	1.76	1.57	1.46	1.26
4	1.62	1.86	2.00	2.32	1.93	2.10	1.89	1.96	1.78	1.52	1.39	1.24
5	1.65	1.82	2.02	1.79	1.78	2.00	1.88	1.91	2.15	1.44	1.36	1.24
6	2.80	1.80	2.41	1.76	1.82	2.12	1.86	1.83	1.92	1.45	1.34	1.21
7	2.47	1.77	2.56	1.93	1.88	2.32	1.86	1.77	1.84	1.54	1.31	1.20
8	2.20	1.74	2.52	1.92	1.82	2.80	1.81	1.73	1.78	1.45	1.34	1.22
9	2.05	1.94	2.35	1.88	1.82	2.54	1.77	1.75	1.72	1.43	1.43	1.21
10	1.97	2.34	2.22	1.88	1.79	2.39	1.77	1.75	1.68	1.41	1.32	1.20
11	1.92	2.19	1.96	1.80	1.76	2.28	1.71	1.90	1.74	1.44	1.28	1.20
12	1.82	2.10	1.76	1.84	1.75	2.23	1.68	1.75	1.63	1.38	1.28	1.20
13	1.83	2.06	1.81	1.85	1.72	2.27	1.69	1.69	1.57	1.36	1.26	1.18
14	1.79	2.02	1.91	2.21	1.74	2.57	1.67	1.72	1.87	1.34	1.33	1.21
15	1.72	2.10	1.80	2.29	1.84	2.42	1.63	2.01	1.72	1.34	1.42	1.18
16	1.70	5.03	2.28	2.18	1.84	2.31	1.59	1.89	1.63	1.65	1.26	1.16
17	1.79	4.32	2.69	2.06	2.50	2.24	1.74	1.82	1.56	1.58	1.27	1.15
18	1.78	3.18	2.27	2.01	2.64	2.16	1.62	1.82	1.49	1.60	1.32	1.14
19	1.71	4.05	2.28	2.44	2.18	2.15	1.54	1.88	2.12	1.40	1.28	1.80
20	1.89	3.24	2.18	3.72	2.96	2.18	1.57	1.79	3.04	1.38	1.26	1.56
21	1.90	2.86	2.08	5.93	3.52	2.50	1.51	1.72	2.54	1.34	1.24	1.44
22	1.83	2.60	1.98	3.65	3.01	2.48	2.57	1.66	2.32	1.32	1.25	1.35
23	1.89	2.44	1.90	2.33	2.42	2.39	2.51	1.71	2.14	2.41	1.26	1.31
24	1.95	2.34	1.94	2.21	2.27	2.29	2.33	1.72	2.02	1.80	1.24	1.23
25	3.42	2.22	2.05	2.10	2.46	2.16	2.18	2.60	1.90	1.67	1.21	1.25
26	2.80	2.20	4.38	1.98	3.12	2.11	2.19	2.54	1.90	1.52	1.21	1.24
27	2.52	2.54	3.40	2.16	2.61	2.08	2.56	2.38	1.78	1.48	1.32	1.22
28	2.27	2.33	3.30	2.32	2.37	2.00	2.61	2.19	1.75	1.42	1.26	1.23
29	2.16	2.30	3.60	2.90	-----	1.96	2.41	2.08	1.70	1.42	1.42	1.22
30	2.12	2.35	2.76	2.62	-----	1.94	2.30	2.00	1.66	1.42	1.33	1.22
31	2.15	-----	2.89	2.10	-----	1.92	-----	1.91	-----	1.63	1.42	-----

NOTE—Stage-discharge relation Dec. 3-11, Dec. 16 to Jan. 4, Jan. 7-21 and 24-29 affected by ice.



Daily discharge, in second-feet, of Little Swatara Creek near Pine Grove for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	63	85	44	53	91	50	80	52	32	24	10
2	24	53	75	40	73	83	59	71	41	27	27	13
3	26	47	65	36	51	75	59	62	40	25	18	7.9
4	23	42	60	40	56	75	52	59	41	21	14	7.1
5	25	38	60	42	41	63	51	54	82	16	12	7.1
6	225	36	65	40	45	78	49	46	55	17	11	6.0
7	143	34	75	30	51	107	49	41	47	23	9.9	5.6
8	86	31	70	26	45	210	44	37	41	17	11	6.4
9	64	51	60	24	45	149	41	39	37	16	16	6.0
10	54	114	48	22	42	118	41	39	33	15	10	5.6
11	48	84	40	24	40	101	36	53	38	16	8.6	5.6
12	38	71	40	28	39	93	33	39	29	13	8.6	5.6
13	39	66	44	36	37	99	34	34	25	12	7.9	5.1
14	35	61	54	60	38	149	33	37	50	11	11	6.0
15	30	71	43	75	47	124	29	64	37	11	15	5.1
16	28	775	36	65	47	106	26	52	29	31	7.9	4.6
17	35	578	30	44	138	94	38	45	24	26	8.3	4.4
18	34	308	30	44	172	83	29	45	19	27	10	4.2
19	29	504	30	48	85	82	23	51	78	14	8.6	4.3
20	45	308	36	260	248	85	25	42	260	13	7.9	24
21	46	222	44	550	380	138	21	37	149	11	7.1	16
22	39	160	48	405	260	134	149	32	107	10	7.5	12
23	45	127	48	109	124	118	138	36	80	122	7.9	9.9
24	52	110	44	65	99	102	109	37	65	43	7.1	8.6
25	375	91	48	44	131	83	85	160	53	33	6.0	7.5
26	225	88	140	36	284	76	87	149	53	21	6.0	7.1
27	150	149	120	40	160	73	149	117	41	19	10	6.4
28	99	109	65	60	115	63	160	87	39	15	7.9	6.7
29	80	104	95	140	-----	59	122	73	35	15	15	6.4
30	74	112	75	160	-----	57	104	63	32	15	11	6.4
31	78	-----	60	75	-----	55	-----	54	-----	29	15	-----

NOTE.—Discharge Dec. 3-11, Dec. 16 to Jan. 4, Jan. 7-21 and 24-29 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Swatara Creek at Harpers, Little Schuylkill River at Tamaqua and Schuylkill River at Reading.

Monthly discharge of Little Swatara Creek near Pine Grove for the year ending Sept. 30, 1927.  
(Drainage area 34 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	375	23	74.9	2.20	2.54
November	775	31	154	4.53	5.05
December	140	30	59.1	1.74	2.01
January	550	22	87.5	2.57	2.96
February	380	37	105	3.09	3.22
March	210	55	97.5	2.87	3.31
April	160	21	64.2	1.89	2.11
May	160	32	59.2	1.74	2.01
June	260	19	57.1	1.68	1.87
July	122	10	23.1	.679	.78
August	27	6.0	11.2	.329	.38
September	43	4.2	8.98	.264	.29
The Year	775	4.2	66.4	1.95	26.53

SUSQUEHANNA BASIN—STATION NO. 31

## SWATARA CREEK AT HARPERS

*Location.*—At two-span steel highway bridge, Harpers, Lebanon County, about five miles northwest of Annville.

*Drainage Area.*—334 square miles.

*Records Available.*—December 17, 1918, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Elmer G. Shuey.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—At low and medium stages, the stream flows under the left span of the bridge. There is a flood plane under the right span which is covered by water during high stages. Outside of the flood plane both banks are medium height but not subject to overflow. Bed is composed of culm and gravel. Control is at a riffle about 300 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 14.6 feet at 11 p. m. November 16 (discharge, about 13,500 second-feet); minimum, 0.24 foot at 8.55 a. m. September 18, (discharge, 39 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,000 second-feet and fairly well defined from 1,000 to 6,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Swatara Creek at Harpers during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
34	Apr. 7	J. M. Snavely	1.55	404
35	7	do	1.59	417
36	May 16	do	2.20	695



Daily Mean Gage Height, in feet, of Swatara Creek at Harpers for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.10	2.38	2.52	1.64	1.98	3.02	1.77	2.54	1.94	1.30	1.58	0.66
2	1.88	2.04	2.26	1.56	1.90	2.75	1.89	2.32	1.77	1.18	2.11	.62
3	1.74	1.89	2.00	1.58	2.01	2.28	1.99	2.16	1.58	1.09	1.29	.60
4	1.62	1.77	2.04	1.44	2.05	2.34	1.81	2.07	1.90	1.02	1.04	.46
5	1.44	1.66	1.66	1.61	1.73	2.28	1.76	2.05	2.85	.88	.85	.44
6	3.98	1.59	1.64	1.58	1.61	2.56	1.78	1.86	2.08	.96	.82	.43
7	3.30	1.52	1.89	1.15	1.85	2.70	1.64	1.73	1.66	1.06	.69	.42
8	2.75	1.48	1.98	1.59	1.93	3.80	1.61	1.58	1.48	1.12	.68	.42
9	2.32	2.05	1.88	2.09	1.76	3.60	1.53	1.60	1.50	.86	1.11	.36
10	2.07	3.49	1.80	1.92	1.77	3.06	1.50	1.64	1.32	.85	.67	.41
11	2.00	2.48	1.69	1.42	1.73	2.82	1.47	2.02	1.44	.87	.62	.38
12	1.82	2.23	1.62	1.30	1.58	2.69	1.27	1.62	1.25	.83	.58	.40
13	1.69	2.10	1.68	1.19	1.54	2.74	1.28	1.40	1.25	.84	.58	.27
14	1.72	2.01	2.05	1.93	1.53	3.20	1.31	1.63	1.49	.83	.79	.36
15	1.52	2.10	1.94	2.40	2.30	3.22	1.25	2.85	1.85	.65	.84	.36
16	1.36	8.78	1.52	1.32	2.45	2.78	1.20	2.20	1.36	1.02	.60	.28
17	1.34	12.18	1.29	1.49	2.40	2.60	1.64	2.03	1.15	1.77	.60	.28
18	1.49	7.02	1.20	1.38	3.62	2.44	1.42	1.92	1.02	1.40	.60	.45
19	1.66	9.10	2.67	1.70	2.81	2.35	1.23	1.90	1.92	1.38	.58	2.74
20	1.58	6.45	2.40	4.32	2.29	2.78	1.08	1.97	5.70	1.06	.54	1.46
21	2.17	5.06	2.12	5.90	2.20	3.52	1.06	1.67	3.20	.80	.53	.88
22	1.60	4.25	1.78	3.95	2.20	3.33	3.50	1.55	2.60	.80	.58	.68
23		3.70	1.61	3.40	2.26	2.92	3.61	1.59	2.41	3.43	.54	.54
24	1.60	3.32	1.46	2.55	2.76	2.74	2.98	1.56	2.16	2.85	.52	.50
25	6.10	3.00	1.46	2.45	3.45	2.52	2.67	3.35	1.88	1.90	.47	.44
26	4.30	3.00	3.68	2.03	4.95	2.32	2.51	3.70	1.87	1.48	.44	.41
27	3.44	3.95	2.45	1.42	3.86	2.24	3.25	3.20	1.72	1.24	.45	.45
28	2.96	2.80	2.01	2.69	3.36	2.07	3.80	2.68	1.48	1.10	.50	.44
29	2.68	2.60	2.75	3.52		1.98	3.06	2.41	1.42	.95	.60	.38
30	2.44	2.84	2.00	3.46		1.92	2.80	2.22	1.28	.93	.55	.38
31	2.36		1.78	2.63		2.04		2.08		1.46	.64	

NOTE—Gage height Oct. 23 not observed. Stage-discharge relation Dec. 19-22, Jan. 8-12 and 16-20 affected by ice.

Daily discharge, in second-feet, of Swatara Creek at Harpers for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	588	717	763	418	547	1,020	454	763	528	300	400	120
2	509	547	673	382	509	913	509	673	454	269	588	111
3	454	509	547	400	547	673	547	630	400	238	300	107
4	400	454	547	348	547	673	472	588	509	207	222	78
5	348	418	418	400	454	673	454	547	913	173	165	74
6	1,670	400	418	400	400	811	472	490	588	195	157	72
7	1,200	365	509	254	490	861	418	454	418	222	127	70
8	913	365	547	240	528	1,530	400	400	365	238	125	70
9	673	547	509	220	454	1,390	382	400	365	168	238	59
10	588	1,320	472	200	454	1,080	365	418	300	165	122	68
11	547	763	436	200	454	913	348	547	348	170	111	62
12	472	630	400	220	400	861	284	400	284	160	103	66
13	436	588	436	269	382	861	300	332	284	162	103	44
14	436	547	547	528	382	1,140	300	418	365	160	150	59
15	365	588	528	717	673	1,140	284	913	400	118	162	50
16	316	6,030	365	600	717	913	269	630	316	207	107	45
17	316	10,200	300	340	717	811	418	547	254	454	107	45
18	365	4,220	269	340	1,390	717	332	509	207	332	107	76
19	418	6,360	240	500	913	717	284	509	509	332	103	861
20	400	3,660	260	1,400	673	913	238	528	3,030	222	94	348
21	630	2,530	400	3,210	630	1,320	222	418	1,140	152	92	173
22	400	1,810	420	1,670	630	1,200	1,320	382	811	152	103	125
23	320	1,460	400	1,260	673	967	1,390	400	717	1,260	94	94
24	400	1,200	348	811	913	861	1,020	382	630	913	90	86
25	3,390	1,020	348	717	1,260	763	861	1,260	509	509	80	74
26	1,890	1,020	1,460	547	2,450	673	763	1,460	490	365	74	68
27	1,260	1,670	717	332	1,600	630	1,140	1,140	436	284	76	76
28	1,020	913	547	861	1,260	588	1,530	861	365	238	86	74
29	861	811	913	1,320		547	1,080	717	332	192	107	62
30	717	913	547	1,320		509	913	630	300	187	96	62
31	717		472	811		547		588		348	116	

NOTE—Discharge estimated Oct. 23, because of no gage height record, from weather records, study of gage height graph and comparison with discharge at other stations, and Dec. 19-22, Jan. 8-12 and 16-20, because of ice, from weather records, study of gage height graph and comparison with similar studies for Schuylkill River at Reading.

Monthly discharge of Swatara Creek at Harpers for the year ending Sept. 30, 1927.  
(Drainage area 334 square miles)

	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	3,390	316	743	2.22	2.56
November	10,200	365	1,750	5.24	5.85
December	1,460	240	508	1.52	1.75
January	3,210	200	685	2.05	2.36
February	2,450	382	752	2.25	2.34
March	1,530	509	878	2.63	3.03
April	1,530	222	592	1.77	1.98
May	1,460	332	611	1.83	2.11
June	3,030	207	555	1.66	1.85
July	1,260	118	293	.877	1.01
August	588	74	149	.446	.51
September	861	44	113	.338	.38
The Year	10,200	44	634	1.90	25.73

#### SUSQUEHANNA BASIN—STATION NO. 32

#### SOUTH BRANCH CODORUS CREEK NEAR YORK

*Location.*—At York Water Company Pumping Station near York, York County, about one-half mile upstream from the confluence of the South and West Branches, Codorus Creek.

*Drainage Area.*—114 square miles.

*Records Available.*—May 21, 1925, to September 30, 1927.

*Gage.*—Staff gage fastened to a braced support at right bank, about 45 feet upstream from the crest of dam; read to hundredths once daily by employees of the York Water Company.

*Discharge Measurements.*—Made by wading 180 feet downstream from dam.

*Channel and Control.*—Banks are low and subject to overflow at high stages. Control is the York Water Company dam; permanent.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 4.6 feet at 8 p. m. November 16; minimum, 0.01 foot at 4 p. m. September 28 and 29.

*Accuracy.*—Daily mean gage heights were computed from a continuous daily hydrograph obtained by plotting staff gage readings.

*Cooperation.*—Record furnished by York Water Company, York, Pennsylvania.



Discharge measurements of South Branch Codorus Creek near York during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
12	May 13	Geo. Weber	1.94	128
13	13	do	1.94	124
14	Sept. 23	do	.84	29.0
15	23	do	.84	28.9

NOTE—Measurements made by wading at site of proposed automatic gage, 180 feet downstream from crest of dam.

Daily Mean Gage Height, in feet, of South Branch Codorus Creek near York for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.13	0.28	0.57	0.73	0.39	0.81	0.70	0.94	0.42	0.24	0.78	0.14
2	.14	.20	.56	.61	.42	.71	.70	.78	.40	.20	.58	.42
3	.22	.20	.54	.50	.39	.70	.75	.60	.40	.18	.36	.30
4	.28	.20	.50	1.00	.37	.76	.70	.52	.50	.20	.26	.14
5	.26	.18	.57	.65	.41	.71	.68	.58	.52	.20	.74	.16
6	.50	.18	.54	.45	.47	.69	.66	.71	.44	.18	.74	.06
7	.48	.20	.52	.39	.60	.68	.60	.62	.38	.20	.34	.10
8	.38	.20	.49	.46	.58	.67	.56	.64	.38	.18	.30	.08
9	.26	.32	.49	.49	.50	.64	.60	.66	.36	.24	.20	.20
10	.26	.52	.49	.39	.44	.60	.58	.62	.34	.18	.16	.18
11	.20	.40	.55	.37	.43	.58	.54	.67	.34	.14	.22	.04
12	.22	.28	.52	.33	.39	.55	.54	.60	.28	.10	.18	.04
13	.22	.28	.50	.40	.57	.51	.53	.60	.24	.06	.16	.06
14	.28	.28	.48	2.10	.82	.59	.53	.72	.42	.04	.25	.06
15	.26	.28	.46	.80	1.18	.57	.52	.70	.43	.06	.34	.08
16	.24	2.85	.46	.34	1.06	.53	.48	.62	.38	.12	.22	.14
17	.24	2.29	.45	.32	.85	.51	.50	.64	.34	.45	.20	.04
18	.20	1.24	.45	.34	.68	.57	.50	.64	.34	.45	.56	.04
19	.18	1.24	.45	.50	.78	.65	.46	.58	.38	1.15	.50	.62
20	.24	.93	.46	.67	.62	.77	.46	.52	.38	.70	.20	.44
21	.30	.75	.42	1.02	.60	.70	.48	.48	.32	.25	.22	.25
22	.26	.70	.42	.80	.68	.56	1.15	.46	.60	.20	.20	.22
23	.18	.70	.39	.60	.87	.53	.95	.46	.47	.38	.18	.30
24	.18	.71	.39	.51	1.09	.52	.75	.48	.22	.25	.18	.16
25	.79	.70	.39	.45	1.04	.54	.70	.54	.20	.14	.18	.14
26	.75	.73	.99	.37	.86	.52	.68	.58	.22	.10	.12	.14
27	.46	.94	.80	.49	.80	.52	.84	.46	.20	.14	.16	.02
28	.40	.86	1.57	.45	.75	.45	.90	.46	.20	.20	.16	.01
29	.38	.59	1.08	1.30		.43	.81	.46	.18	.18	.18	.01
30	.38	.48	.78	1.15		.45	.90	.42	.12	.22	.14	.02
31	.30		.75	.54		.43		.44		.64	.14	

SUSQUEHANNA BASIN—STATION NO. 33

### CODORUS CREEK AT YORK

*Location.*—At three-span steel highway bridge, South Penn Street, York, York County.

*Drainage Area.*—221 square miles.

*Records Available.*—October 7, 1915, to August 31, 1923, and August 20, 1926, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; usually read twice daily to hundredths by employees of Schmidt & Ault Paper Company. Elevation of gage zero 351.86 feet, United States Geological Survey datum; previously published as 351.79 feet.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of mud and gravel. The Loueks Mill Dam, located about one and one-half miles downstream from gage, is control for medium, high and probably low stages when the water surface at dam is not below the crest elevation. During low stages, when the water surface is below the crest of dam, the station control is probably at a riffle about 800 feet downstream from the gage. Stage-discharge relation variable during low stages on account of operations at Loueks Mill.

*Extremes of Stage.*—1925-1926. Maximum gage height during the period August 20 to September 30, estimated from hydrograph, 3.50 feet at 6 a. m. September 10; minimum, 1.48 feet at 2.40 p.m. September 12.

1926-1927. Maximum gage height during the year, estimated from hydrograph, 7.2 feet at 4 p. m. November 16; minimum, 0.99 foot at 10.15 a. m. September 29.

*Ice.*—Stage-discharge relation rarely affected by ice.

*Cooperation.*—Station is maintained in cooperation with Schmidt & Ault Paper Company, York, Pennsylvania.

Discharge measurements of Codorus Creek at York during the period Oct. 1, 1925, to Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
29	1926 Aug. 13	Geo. Weber	6.76	2,710
30	23	do	1.89	161
31	1927 May 13	do	2.33	336a

a Discharge for right channel made from upstream and left channel from downstream side of bridge.



Daily Mean Gage Height, in feet, of Codorus Creek at York for the year ending Sept. 30, 1926.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												1.50
2												1.70
3												1.65
4												1.54
5												1.56
6												1.68
7												1.78
8												1.62
9												1.90
10												2.90
11												1.82
12												1.52
13											6.76	1.65
14												1.64
15												1.60
16												1.60
17												1.60
18												1.56
19												1.64
20											1.86	1.60
21												1.52
22												1.60
23											1.86	1.90
24												1.66
25											1.70	1.71
26											1.80	1.66
27											1.70	1.80
28											1.64	2.30
29											1.60	1.89
30											1.60	1.54
31												

NOTE—Station reestablished Aug. 20, 1926. Gage height not observed on days of no record.

Daily Mean Gage Height, in feet, of Codorus Creek at York for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.80	1.90	2.53	2.21	1.98			3.14	1.94	1.68	4.26	1.48
2		1.78		2.09	1.98			2.88	1.92	1.68	2.59	1.44
3	1.70	1.76		2.06	1.97			2.62	1.82	1.71	1.75	1.31
4	1.72	1.66		2.31	2.05			2.40		1.72	1.77	1.46
5	1.78	1.68	2.27	2.48	2.05		2.25	2.40	2.40	1.68	2.47	1.48
6	2.40	1.62	3.04	2.31	2.00		2.53	2.47	1.90	1.67	1.91	1.56
7	2.10		2.17	1.98	2.05		3.03	2.42	1.80	1.62		1.58
8	1.86	1.60	2.05	1.60	2.17		2.23	2.36	1.98	1.53	1.62	1.47
9	1.82	1.63	2.07	1.78	2.13		2.23	2.44	1.90	1.61	1.81	1.43
10		2.20	2.15	1.86	2.21		2.25	2.47	1.76	1.60	1.51	1.37
11	1.77	1.90	2.19	1.84	2.23		2.18	3.02	1.72	1.65	1.42	1.45
12	1.80	1.78		1.72	2.10		2.05	2.52	1.77	1.67	1.34	
13	1.78	1.57	2.35	1.86	2.10		2.05		1.80	1.57	1.28	
14	1.95		2.35	3.96	2.13		2.11	2.30	2.00	1.39		
15	1.86	1.77	2.15	2.21	2.39		1.97	2.55	2.14		1.61	
16	1.74	5.58	1.96	1.81	2.45		1.95	2.24	1.85	1.53	1.48	
17	1.76	5.02	1.80	1.88	2.43		2.23	2.20	1.85	1.67	1.81	
18	1.75	3.95		1.86	2.63		2.08	2.22		1.77	3.99	1.36
19	1.79	5.39	1.78	1.85	2.95		1.93	2.34		3.44	2.16	4.30
20	1.92	3.31	1.96	2.73			1.99	2.20	1.88	2.07	1.66	2.10
21	1.96	3.32	1.92	3.35	2.64		2.21	2.16	1.78	1.55	1.71	1.57
22	1.82	3.07	2.04		2.54		3.81	2.28	1.70	1.62		1.49
23	1.74	2.88	1.96		2.78		3.41	2.10	1.92	2.46		1.45
24	1.88	2.73	1.87	2.20	3.44		2.83	2.08	1.60	1.65		1.17
25	3.90	2.67	2.16	2.07	3.69		2.63	2.20	1.45	1.47		1.38
26	2.40	2.67	4.63	2.08			2.58	2.20	1.69	1.31	1.56	1.53
27	2.01	3.22	2.70	1.65			2.93	2.12	1.70	1.29	1.51	1.33
28	1.92	2.57	3.14	1.80			2.86	2.02	1.73	1.57	1.61	1.31
29	1.84		3.20	4.75			2.68	1.98	1.70	1.33	1.52	1.10
30	1.78	2.65	2.55	2.50				2.04	1.68	1.62	1.52	1.45
31			2.28	2.13				2.00			1.44	

NOTE—Gage height not observed on days of no record.

## OHIO BASIN



## OHIO BASIN—STATION NO. 1

## ALLEGHENY RIVER NEAR LARABEE

*Location.*—At old single-span steel highway bridge on road to Corryville, about one mile south of Pennsylvania Railroad station at Larabee, McKean County, until April 22, 1926. At new single-span steel highway bridge 80 feet downstream from the old bridge subsequent to May 18, 1926.

*Drainage Area.*—545 square miles.

*Records Available.*—June 29, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of new bridge; read by Miss Mildred Leet.

*Discharge Measurements.*—Made from upstream side of bridges or by wading; during extremely high stages from railroad bridge a short distance downstream.

*Channel and Control.*—The right bank is high and not subject to overflow. At a gage height of about 4 feet the river begins to overflow the left bank upstream from the bridges into a broad flat, where a part of the stream flow remains in storage until the river recedes. Bed is composed of gravel, stones and boulders. Low-water control is the upper sill of an old timber dam 30 feet downstream from gage at new location. The timber abutments are vertical and have the effect of a weir at low stages.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 12.5 feet at noon, March 15 (discharge, about 4,580 second-feet); a stage of 12.52 feet was observed at 8 a. m. January 24, but the water was held back by an ice jam; minimum, 0.43 foot at 8 a. m. September 26, 27 and from 5 p. m. September 28 to 8 a. m. September 29 (discharge, 40 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined from 50 to 2,000 second-feet and fairly well defined from 2,000 to 4,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

Daily Mean Gage Height, in feet, of Allegheny River near Larabee for the year ending Sept. 30, 1927

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.75		6.08	2.87	6.69	5.02	5.08	6.55	5.79	0.85	1.28	0.67
2	3.85		5.38	2.59	6.06	4.24	6.42	5.72	4.91	.81	1.22	.63
3	3.40		5.41	2.71	5.76	4.12	6.52	5.24	4.29	.83	.82	.57
4	3.10		5.18	2.67	6.92	3.83	5.94	5.45	4.09	.80	.74	.59
5	3.20	5.40	4.84	2.68	6.06	3.41	7.06	7.63	4.89	.75	.69	.65
6	6.05	5.17	5.26	2.48	5.88	3.95	8.66	6.96	3.89	.75	.64	.69
7	5.62	4.52	6.06	2.45	6.28	4.40	9.19	6.52	3.39	.80	.64	.66
8	5.18	4.39	6.54	2.25	5.45	8.07	8.99	5.88	3.11	.88	.60	.59
9	4.65	4.17	6.54	2.23	5.18	9.73	8.11	5.60	2.85	.85	.74	.52
10	4.78	5.62	6.14	2.34	4.91	8.67	7.36	5.43	2.59	.75	.73	.52
11	6.15	5.07	5.23	2.35	4.61	8.38	6.31	5.44	2.45	.71	.64	.63
12	5.75	4.91	4.81	2.34	4.25	9.27	5.69	4.85	2.23	.69	.62	.57
13	4.37	4.74	4.97	2.25	3.72	9.84	5.11	4.45	2.06	.65	.59	.57
14	3.92	4.51	5.71	2.41	4.48	11.32	4.53	4.18	2.03	.66	.64	.62
15	3.73	4.36	5.00	2.28	5.85	12.42	4.09	5.80	2.19	.65	.99	.65
16	3.37	7.31	3.25	2.25	5.03	11.99	3.77	6.38	1.79	.75	.83	.59
17	3.07	10.86	3.50	2.20	6.93	11.22	3.81	6.60	1.62	.75	.65	.57
18	3.37	10.90	3.37	2.21	7.43	10.52	3.45	6.62	1.51	1.01	.66	.59
19	3.39	11.03	3.47	2.54	6.48	10.46	3.21	7.18	1.51	.71	.85	.56
20	3.39	10.71	3.77	7.69	5.68	10.14	3.08	8.02	1.90	.68	.92	.54
21	3.37	9.96	4.25	9.89	5.63	11.58	2.91	7.32	1.64	.60	1.42	.55
22	2.52	8.31	3.57	10.69	5.26	12.17	3.96	6.72	1.41	.66	1.42	.51
23	2.72	6.84	3.27	12.10	6.51	11.74	3.51	7.27	1.32	1.02	1.70	.49
24	3.22	6.16	3.23	12.40	8.20	10.94	3.29	9.55	1.21	1.05	1.05	.51
25	6.57	5.68	3.08	11.56	7.50	9.80	3.29	10.57	1.13	.89	.81	.46
26	10.17	5.08	2.87	10.02	8.08	8.12	4.31	11.60	1.37	.75	.75	.44
27	9.27	5.71	2.50	6.04	6.61	7.14	7.26	11.58	1.29	.71	.67	.44
28	7.97	5.41	3.10	6.56	5.73	7.17	8.91	10.80	1.16	.67	.71	.45
29	7.02	5.66	3.05	6.69		6.24	8.55	9.68	.98	.65	.75	.44
30	6.72	6.93	2.84	6.52		5.74	7.57	7.95	.89	.88	.71	.46
31			2.64	6.00		5.37		6.88		1.07	.69	

NOTE—Gage height Oct. 31 to Nov. 4 not observed. Stage-discharge relation Dec. 3-12, 17-19 and Dec. 24 to Jan. 30 affected by ice.

Daily discharge, in second-feet, of Allegheny River near Larabee for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	723	1,900	1,440	360	1,660	1,070	1,100	1,620	1,330	104	179	76
2	723	1,700	1,200	340	1,440	833	1,540	1,300	1,040	98	162	70
3	615	1,500	950	320	1,330	805	1,580	1,130	862	101	99	62
4	536	1,300	700	300	1,730	723	1,360	1,200	805	96	87	64
5	562	1,200	550	300	1,440	615	1,800	1,990	1,040	88	80	74
6	1,400	1,130	550	280	1,360	777	2,460	1,770	750	88	72	80
7	1,260	920	700	260	1,500	891	2,710	1,580	615	96	72	75
8	1,130	891	850	260	1,200	2,180	2,610	1,360	536	109	66	64
9	950	833	950	240	1,130	2,966	2,180	1,260	462	104	87	54
10	1,010	1,260	900	240	1,040	2,460	1,920	1,200	419	88	86	54
11	1,470	1,100	750	240	950	2,320	1,500	1,200	379	82	72	70
12	1,330	1,040	650	240	833	2,760	1,300	1,010	339	80	69	62
13	891	980	1,070	220	696	3,020	1,100	891	319	74	64	62
14	750	920	1,300	220	920	3,880	920	833	300	75	72	69
15	696	891	1,070	200	1,330	4,530	805	1,330	339	74	126	74
16	615	1,880	562	200	1,070	4,280	723	1,540	264	88	101	64
17	536	3,630	500	200	1,730	3,820	723	1,620	230	88	74	62
18	615	3,630	500	220	1,920	3,410	615	1,620	213	128	75	64
19	615	3,700	550	240	1,580	3,410	562	1,840	213	82	104	60
20	615	3,530	723	340	1,300	3,180	536	2,140	282	78	115	57
21	615	3,130	833	1,000	1,260	4,050	485	1,880	230	66	196	58
22	399	2,280	669	2,400	1,160	4,410	777	1,660	196	75	196	52
23	440	1,690	588	3,400	1,580	4,100	642	1,880	179	128	247	50
24	562	1,470	460	3,000	2,230	3,630	588	2,910	162	136	136	52
25	1,620	1,306	420	2,400	1,950	3,020	588	3,470	154	110	98	45
26	3,240	1,100	400	1,700	2,140	2,180	862	4,050	188	88	88	42
27	2,760	1,300	380	1,300	1,620	1,800	1,880	4,050	179	82	76	42
28	2,140	1,200	380	1,100	1,300	1,840	2,560	3,580	154	76	82	44
29	1,770	1,300	380	1,000		1,470	2,410	2,960	125	74	82	42
30	1,660	1,730	400	1,100		1,300	1,990	2,140	110	109	82	45
31		2,000		380	1,400		1,200		1,730		80	

NOTE—Discharge estimated Oct. 31 to Nov. 4, because of no gage height record, from weather records, study of gage height graph and comparison with discharge of Allegheny River at Red House, and Dec. 3-12, 17-19 and Dec. 24 to Jan. 30, because of ice, from weather records, study of gage height graph and comparison with similar studies for Allegheny River at Red House, Tionesta Creek at Nebraska and Driftwood Branch Sinnemahoning Creek at Sterling Run.



Monthly discharge of Allegheny River near Larabee for the year ending Sept. 30, 1927.

(Drainage area 545 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	3,240	399	1,100	2.02	2.33
November	3,700	833	1,680	3.08	3.44
December	1,440	380	702	1.29	1.49
January	3,400	200	807	1.48	1.71
February	2,230	696	1,410	2.59	2.70
March	4,530	615	2,480	4.55	5.25
April	2,710	485	1,360	2.50	2.79
May	4,050	833	1,890	3.47	4.00
June	1,330	110	414	.760	.85
July	136	66	93.6	.172	.20
August	247	64	104	.191	.22
September	80	42	59.6	.109	.12
The Year	4,530	42	1,010	1.85	25.10

#### OHIO BASIN—STATION NO. 2

### BROKENSTRAW CREEK AT YOUNGSVILLE

*Location.*—At single-span steel highway bridge, Youngsville, Warren County.

*Drainage Area.*—290 square miles.

*Records Available.*—October 22, 1909, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by William L. York. Elevation of gage zero 1,188.92 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of silt, clay and gravel. Control is at the first of a series of riffles, extending from 300 to 500 feet downstream from the gage; may shift occasionally.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.9 feet at 5 a. m. October 26 (discharge, 7,150 second-feet); minimum —0.28 foot at 7.55 a. m. September 22, 8.25 a. m. September 24 and 9.50 a. m. September 25 (discharge, 43 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 50 and 5,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Brokenstraw Creek at Youngsville during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
47	July 15	S. A. Kowalehik	Feet 0.02	Sec.-ft. 102

Measurement made by wading 800 feet upstream from gage.

Daily Mean Gage Height, in feet, of Brokenstraw Creek at Youngsville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.89	2.75	2.62	0.60	3.48	1.45	1.25	1.18	0.95	0.05	1.80	-0.05
2	1.05	2.58	1.92	.50	2.60	1.20	1.77	.84	.00	1.22	-0.10	
3	.96	2.43	1.55	.57	1.78	1.10	1.90	1.06	.72	-.03	.67	-.14
4	.88	2.20	1.36	.56	2.42	.96	1.79	1.26	1.11	-.05	.64	-.15
5	2.55	1.92	.86	.54	2.20	.98	3.44	1.33	1.72	-.07	.36	-.19
6	3.35	1.72	1.00	.44	1.70	1.22	3.95	1.03	1.23	-.05	.30	-.21
7	2.65	1.74	1.09	.40	2.10	1.99	3.04	.73	.99	.03	.28	-.22
8	2.77	1.52	1.48	.45	1.80	4.30	1.92	.76	.70	.06	.35	-.23
9	2.25	1.81	1.59	.64	1.60	3.82	1.45	.73	.63	.07	.27	-.21
10	1.78	2.75	1.52	1.07	1.36	2.98	1.35	.87	.54	-.05	.11	-.21
11	3.11	2.50	1.35	1.00	1.19	2.60	1.11	.88	.46	-.07	.03	-.12
12	2.70	2.16	1.28	.80	1.02	3.21	1.05	.85	.39	-.12	-.03	-.10
13	1.94	1.82	1.40	.69	.82	3.70	1.00	.75	.30	-.12	-.06	-.08
14	1.55	1.88	2.51	.74	1.40	4.65	.91	.77	.29	-.11	-.06	-.04
15	1.26	2.15	2.27	.95	2.45	4.35	.84	1.55	.27	.04	-.02	-.10
16	1.05	7.00	1.48	1.04	2.20	3.31	.80	2.61	.20	.12	-.06	-.16
17	1.14	6.50	1.09	.97	3.20	2.41	1.08	2.53	.19	.26	-.10	-.19
18	1.17	4.60	.77	.81	3.10	2.27	1.09	2.40	.17	.06	-.10	-.20
19	1.80	3.82	.76	1.65	2.11	2.57	1.00	2.44	.33	-.04	-.09	-.20
20	1.80	3.10	.92	3.80	1.38	-----	1.15	2.18	.33	-.05	-.10	-.20
21	1.94	2.34	.95	3.75	1.28	4.45	1.00	1.68	.33	-.08	.28	-.23
22	2.22	2.02	.96	5.18	1.09	4.42	.95	1.54	.20	-.05	.03	-.25
23	2.82	1.87	.94	4.65	1.71	3.50	.82	4.25	.19	.85	.44	-.22
24	3.70	1.76	.83	3.60	2.75	2.25	.75	4.92	.20	.70	.39	-.26
25	6.55	1.78	.96	2.60	2.30	1.86	.78	4.84	.23	.57	.09	-.28
26	6.76	1.92	.65	1.83	2.39	1.72	1.37	3.73	.69	.34	-.03	-.12
27	4.70	2.83	.65	1.07	1.74	2.23	2.50	2.92	.71	.39	-.10	-.22
28	3.42	2.80	.78	1.11	1.64	2.03	2.69	2.16	.45	.55	-.12	-.23
29	2.80	2.33	.70	1.50	-----	1.65	1.91	1.68	.18	.33	-----	-.18
30	2.42	2.88	.64	3.15	-----	1.50	1.46	1.49	.09	1.10	.04	-.19
31	2.65	-----	.61	3.82	-----	1.40	-----	1.23	-----	1.68	.03	-----

NOTE—Stage-discharge relation Dec. 17-20 and Jan. 8-20 affected by ice. Gage height Mar. 20 and Aug. 29 not observed, and May 2 unsatisfactory.



Daily discharge, in second-feet, of Brokenstraw Creek at Youngsville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	378	1,440	1,300	265	1,980	620	522	500	398	102	800	80
2	438	1,300	860	230	1,300	500	800	440	358	90	500	70
3	398	1,160	695	248	800	458	860	438	300	84	282	63
4	378	1,040	570	248	1,160	398	800	522	458	80	282	62
5	1,300	860	358	248	1,040	418	1,900	570	745	76	188	55
6	1,900	745	418	212	745	500	2,420	438	522	80	170	52
7	1,300	745	458	200	980	920	1,580	319	418	98	164	50
8	1,440	645	645	190	800	2,700	860	319	300	105	185	49
9	1,040	800	695	180	695	2,240	620	319	282	108	161	52
10	800	1,440	645	180	570	1,580	570	358	248	80	118	52
11	1,660	1,230	570	170	500	1,300	458	378	218	76	98	67
12	1,370	1,040	545	170	418	1,740	438	358	197	67	84	70
13	860	800	595	160	338	2,150	418	319	170	67	78	74
14	695	860	1,230	160	595	3,000	378	319	167	68	78	82
15	522	1,040	1,100	160	1,160	2,800	358	695	161	100	86	70
16	438	5,890	645	160	1,040	1,820	338	1,300	140	120	78	60
17	479	5,210	380	160	1,740	1,160	458	1,230	138	158	70	55
18	479	3,000	280	160	1,660	1,100	458	1,160	132	105	70	53
19	800	2,240	280	160	980	1,300	418	1,160	179	82	72	53
20	800	1,660	320	650	595	1,100	479	1,040	179	80	70	53
21	860	1,100	398	2,240	545	2,800	418	745	179	74	164	49
22	1,040	920	398	3,630	458	2,800	398	645	140	80	98	46
23	1,440	860	398	3,000	745	1,980	338	2,600	138	358	212	50
24	2,150	800	358	2,060	1,440	1,040	319	3,300	140	300	197	45
25	5,340	800	398	1,300	1,100	860	338	3,200	149	248	112	43
26	5,610	860	282	800	1,160	745	570	2,150	300	182	84	67
27	3,100	1,440	282	438	745	1,040	1,230	1,510	300	197	70	50
28	1,900	1,440	338	458	695	920	1,370	1,040	215	248	67	49
29	1,440	1,100	300	645	695	860	745	135	179	90	56	
30	1,160	1,510	282	1,740	645	620	645	112	458	100	55	
31	1,300	265	2,240	595	522	745	98					

NOTE—Discharge estimated Dec. 17-20 and Jan. 8-20, because of ice, from weather records, study of gage height graph and comparison with similar studies for Allegheny River near Larabee, Tionesta Creek at Nebraska and Oil Creek near Rouseville, and Mar. 20 and Aug. 29, because of no gage height record, and May 2, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with discharge at other stations.

Monthly discharge of Brokenstraw Creek at Youngsville for the year ending Sept. 30, 1927.

(Drainage area 290 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,610	378	1,380	4.76	5.49
November	5,890	645	1,470	5.07	5.66
December	1,300	265	525	1.81	2.09
January	3,630	160	737	2.54	2.93
February	1,980	338	923	3.20	3.33
March	3,000	398	1,350	4.66	5.37
April	2,420	319	720	2.48	2.77
May	3,300	319	945	3.26	3.76
June	745	112	251	.866	.97
July	745	67	158	.545	.63
August	800	67	159	.548	.63
September	80	43	57.7	.199	.22
The Year	5,890	43	723	2.49	33.85

OHIO BASIN—STATION NO. 3

## TIONESTA CREEK AT NEBRASKA

*Location.*—At single-span steel highway bridge, Nebraska, Forest County, on road to Newmansville, about one-third of a mile downstream from the mouth of Coon Creek.

*Drainage Area.*—475 square miles, revised. Published in State reports previous to 1926 as 473 square miles.

*Records Available.*—October 24, 1909, to September 30, 1912, and August 5, 1923, to September 30, 1927. Records prior to August 5, 1923, are contained in the Report of Flood Commission, Pittsburgh, Pennsylvania.

*Gage.*—Standard chain attached to downstream side of bridge; read by Lyman Cook. Elevation of gage zero 1,079.00 feet, United States Geological Survey datum. Elevation of gage zero previously published as 1,077.78 feet, referred to bench mark described on page 190, Report of Flood Commission, Pittsburgh, Pennsylvania, 1911. When the chain gage was established on August 5, 1923, a wrong spike was probably used for bench mark and the elevation of the zero was 1,075.86 feet, instead of 1,077.78 feet. On July 14, 1927, the zero of the gage was raised 3.14 feet to elevation 1,079.00 feet, United States Geological Survey datum, referred to Pennsylvania Department of Highways' bench mark.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—The left bank is high and not subject to overflow; right is of medium height and overflows during extremely high stages. Bed is composed of gravel and rock; probably permanent. Control is the sill of an old dam a few hundred feet downstream from the gage.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.9 feet at 9 p. m. May 25 (discharge, 8,110 second-feet); minimum, 0.8 foot from 6 p. m. September 7 to 3.30 p. m. September 10 and on September 25 (discharge, 19 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined to 14,000 second-feet. Gage read



to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Tionesta Creek at Nebraska during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
20	July 14a	S. A. Kowalchik	1.36	82.3
21	26a	do	1.42	120

a Measurement made by wading 300 feet upstream from gage.

Daily Mean Gage Height, in feet, of Tionesta Creek at Nebraska for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.15	4.65	5.1	2.1	4.45	3.55	3.35	4.1	3.65	1.35	1.7	1.15
2	3.1	4.5	4.5	2.0	4.05	3.2	3.95	3.8	3.3	1.3	1.55	1.05
3	4.2	4.4	4.0	2.0	3.75	3.1	4.25	3.6	3.0	1.25	1.35	1.0
4	3.7	3.95	3.8	2.0	4.25	2.9	3.95	3.65	3.2	1.2	1.25	.95
5	4.0	3.8	3.5	1.9	3.9	2.8	4.2	4.3	4.1	1.1	1.1	.95
6	5.6	3.65	3.2	1.9	3.7	3.2	5.1	3.7	3.35	1.05	1.1	.95
7	5.1	3.4	2.9	1.8	3.9	3.6	4.45	3.5	2.95	1.15	1.1	.9
8	4.6	3.25	3.5	1.75	3.65	5.4	4.2	3.3	2.8	1.2	1.3	.85
9	4.15	3.15	3.55	1.7	3.4	5.15	3.95	3.15	2.6	1.1	1.4	.85
10	3.75	3.45	3.25	1.7	3.45	4.75	3.75	3.15	2.4	1.05	1.25	.85
11	5.05	3.35	3.1	1.6	3.3	4.65	3.4	3.15	2.3	1.05	1.15	1.65
12	4.5	3.0	3.0	1.6	3.1	4.85	3.15	3.0	2.25	.95	1.0	1.25
13	4.05	2.9	3.3	1.5	2.95	5.75	3.1	2.8	2.1	.95	1.0	1.25
14	3.75	3.1	4.45	1.65	3.15	7.2	2.85	2.7	2.05	1.10	.9	1.15
15	3.55	3.05	3.85	1.8	4.4	6.85	2.65	3.7	2.0	1.35	.95	1.05
16	3.25	6.95	3.0	1.7	4.0	5.75	2.55	4.35	1.9	2.4	1.0	.95
17	3.1	7.65	2.8	1.65	4.4	5.15	2.9	4.45	1.75	4.6	.9	.95
18	3.15	6.05	2.55	1.6	4.45	4.8	2.85	4.2	1.65	1.45	.9	1.05
19	3.4	6.25	2.35	2.35	4.25	5.05	2.65	5.05	1.8	1.3	.9	1.25
20	3.25	5.3	2.25	6.15	4.1	5.3	2.7	5.15	2.0	1.2	1.0	1.25
21	3.2	4.85	3.15	6.55	3.75	7.9	2.65	4.5	1.8	1.1	1.55	1.15
22	3.05	4.35	3.0	7.7	3.35	7.65	4.25	4.25	1.6	1.15	1.45	.95
23	3.2	4.0	2.8	7.2	4.45	6.0	3.8	6.2	1.55	1.7	1.25	.95
24	3.5	3.65	2.6	5.85	4.85	5.3	3.45	7.55	1.5	1.75	1.2	.95
25	6.5	3.55	2.55	4.85	4.3	4.7	3.35	8.0	1.55	-----	1.15	.85
26	6.45	3.5	2.65	4.15	4.8	4.25	4.0	8.25	1.95	-----	1.05	.95
27	5.3	4.0	2.4	3.25	4.25	4.35	5.8	6.95	1.9	1.25	.95	.95
28	4.65	3.7	2.3	3.1	3.9	4.25	6.25	5.7	1.6	1.1	.95	.95
29	4.35	3.9	2.2	3.25	-----	4.0	5.25	4.85	1.5	1.2	.95	1.0
30	4.05	5.75	2.1	4.35	-----	3.75	4.55	4.3	1.35	1.3	1.05	1.05
31	4.55	-----	2.1	4.85	-----	3.6	-----	3.95	-----	1.4	1.3	-----

NOTE—Stage-discharge relation Jan. 14-21 affected by ice. Gage height July 25 and 26 unsatisfactory.

Daily discharge, in second-feet, of Tionesta Creek at Nebraska for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	975	2,130	2,630	317	1,950	1,290	1,130	1,690	1,290	98	179	66
2	900	2,040	2,040	278	1,610	975	1,610	1,450	1,050	89	140	51
3	1,130	1,950	1,610	278	1,450	900	1,770	1,290	830	81	98	44
4	1,370	1,610	1,450	278	1,770	760	1,610	1,290	975	73	81	38
5	1,610	1,450	1,210	242	1,530	695	1,770	1,860	1,690	58	58	38
6	3,170	1,290	975	242	1,370	975	2,630	1,370	1,130	51	58	38
7	2,630	1,130	760	209	1,530	1,290	1,950	1,210	795	66	58	31
8	2,130	975	1,210	194	1,290	2,940	1,770	1,050	695	73	89	25
9	1,770	975	1,290	179	1,130	2,730	1,610	975	570	58	107	25
10	1,450	1,130	975	179	1,130	2,330	1,450	975	455	51	81	25
11	2,530	1,130	900	152	1,050	2,130	1,130	975	405	51	66	166
12	2,040	830	830	152	900	2,330	975	830	382	38	44	81
13	1,610	760	1,050	128	795	3,410	900	695	517	38	44	81
14	1,450	900	1,950	120	975	5,280	728	630	298	58	31	66
15	1,290	830	1,450	110	1,950	4,720	600	1,370	278	98	38	51
16	975	5,000	830	110	1,610	3,410	540	1,950	242	455	44	38
17	900	5,880	695	110	1,950	2,730	760	1,950	194	2,130	31	38
18	975	3,650	540	110	1,950	2,330	728	1,770	166	118	31	51
19	1,130	3,910	430	130	1,770	2,530	600	2,530	209	89	31	81
20	975	2,830	382	1,000	1,690	2,830	630	2,730	278	73	44	81
21	975	2,330	975	2,800	1,450	6,340	600	2,040	209	58	140	66
22	830	1,950	830	6,030	1,130	5,880	1,770	1,770	152	66	118	38
23	975	1,610	605	5,280	1,950	3,650	1,450	3,910	140	179	81	38
24	1,210	1,290	570	3,410	2,330	2,830	1,130	5,880	128	194	73	38
25	4,300	1,290	540	2,330	1,860	2,230	1,130	6,500	140	140	66	25
26	4,170	1,210	600	1,770	2,330	1,770	1,610	6,840	260	110	51	38
27	2,830	1,610	455	975	1,770	1,950	3,410	5,000	242	73	38	38
28	2,130	1,370	405	900	1,530	1,770	3,910	3,290	152	58	38	38
29	1,950	1,530	359	975	-----	1,610	2,730	2,330	128	73	38	44
30	1,610	3,410	317	1,950	-----	1,450	2,130	1,860	98	89	51	51
31	2,130	-----	317	2,330	-----	1,290	-----	1,610	-----	107	89	-----

NOTE—Discharge estimated Jan. 14-21, because of ice, from weather records, study of gage height graph and comparison with similar studies for Allegheny River at Larabee, Oil Creek near Rouseville and Clarion River near Piney, and July 25 and 26, because of unsatisfactory gage height record, from weather records and study of gage height graph.

Monthly discharge of Tionesta Creek at Nebraska for the year ending Sept. 30, 1927.  
(Drainage area 475 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	3,170	830	1,750	3.68	4.24
November	5,880	760	1,930	4.06	4.53
December	2,630	317	944	1.99	2.29
January	6,030	110	1,070	2.25	2.59
February	2,330	795	1,560	3.28	3.42
March	6,340	695	2,500	5.26	6.06
April	3,910	540	1,490	3.14	3.50
May	6,840	630	2,250	4.74	5.46
June	1,690	98	463	.975	1.09
July	2,130	38	161	.339	.39
August	179	31	68.9	.145	.17
September	166	25	51.0	.107	.12
The Year	6,840	25	1,190	2.51	35.86



## OHIO BASIN—STATION NO. 4

## OIL CREEK NEAR ROUSEVILLE

*Location.*—At two-span steel highway bridge, one-half mile downstream from Rouseville, Venango County.

*Drainage Area.*—330 square miles.

*Records Available.*—October 20, 1909, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Mrs. Lenna Copeland.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Left bank is high and not subject to overflow; right becomes inundated at a stage of about 9.2 feet. Bed is composed of gravel and boulders. Control is the first of a series of riffles extending from 250 to 450 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, 5.47 feet observed at 4.30 p. m. November 16 (discharge, 7,680 second-feet); minimum, 0.70 foot at 9.30 a. m. September 7 (discharge, 54 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 50 and 10,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of Oil Creek near Rouseville during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
47	July 14	S. A. Kowalchik	Feet 0.88	Sec.-ft. 80.3

Measurement made by wading 4,000 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Oil Creek near Rouseville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.51	2.57	2.37	1.36	2.38	1.79	1.73	1.82	1.66	0.97	1.49	0.85
2	1.62	2.31	2.12	1.26	2.12	1.56	2.19	1.75	1.55	.95	1.15	.82
3	2.02	2.34	1.93	1.37	1.99	1.55	2.19	1.82	1.46	.95	.99	.80
4	1.76	2.09	1.91	1.36	2.49	1.42	2.13	1.98	2.01	.92	.94	.78
5	1.71	1.99	1.67	1.31	1.98	1.38	2.65	2.08	2.57	.92	.90	.75
6	2.97	1.95	1.65	1.30	2.05	1.81	3.07	1.84	1.95	.92	.90	.72
7	2.87	1.91	1.62	1.28	2.32	2.17	2.40	1.74	1.65	1.01	.93	.71
8	2.47	1.81	1.90	1.28	1.95	3.49	2.11	1.63	1.52	.99	.95	.76
9	2.04	2.04	1.99	1.35	1.93	2.70	1.98	1.59	1.45	.92	.95	.76
10	1.86	2.92	1.92	1.44	1.80	2.37	1.84	1.66	1.41	.90	.90	.77
11	2.77	2.33	1.80	1.29	1.68	2.35	1.73	1.67	1.42	.88	.86	.99
12	2.30	2.20	1.67	1.31	1.51	2.56	1.69	1.60	1.33	.86	.83	.84
13	1.99	2.05	1.75	1.23	1.45	2.56	1.66	1.54	1.26	.84	.82	.92
14	1.85	2.17	2.87	1.34	1.72	3.37	1.61	1.53	1.28	.85	.87	.96
15	1.66	2.49	2.12	1.28	2.52	3.12	1.51	1.89	1.24	.98	.87	.87
16	1.58	4.57	1.62	1.26	2.12	2.56	1.47	2.76	1.17	1.06	.83	.82
17	1.61	4.42	1.62	1.28	2.52	2.28	1.85	2.86	1.14	1.00	.81	.80
18	1.81	-----	1.46	1.27	2.45	2.23	1.79	2.67	1.13	.98	.84	.83
19	2.27	-----	1.46	1.97	1.97	2.52	1.78	2.91	1.31	.94	.85	.79
20	2.12	2.65	1.57	3.77	1.72	2.67	1.72	2.57	1.25	.88	.84	.78
21	2.42	2.42	1.57	3.35	1.77	4.27	1.62	2.22	1.18	.87	.84	.78
22	2.42	2.18	1.53	4.07	1.62	3.62	1.66	1.97	1.16	.93	.87	.77
23	2.59	2.11	1.42	3.57	2.06	2.64	1.60	3.41	1.13	1.34	.89	.78
24	2.47	2.09	1.47	2.68	2.77	2.37	1.56	4.31	1.09	1.30	1.04	.76
25	4.47	2.07	1.59	2.18	2.32	2.19	1.56	3.51	1.08	1.13	.97	.76
26	4.07	2.14	1.45	1.95	2.37	2.16	2.22	3.21	1.28	1.00	.86	.76
27	3.00	2.90	1.37	1.49	2.08	2.34	2.95	2.81	1.18	.96	.82	.73
28	2.42	2.34	1.43	1.50	1.95	2.05	2.96	2.31	1.08	1.03	.82	.72
29	2.32	2.30	1.43	1.79	-----	1.96	2.29	2.07	1.04	1.07	.82	.82
30	2.22	2.85	1.34	2.97	-----	1.86	2.04	1.92	1.00	1.00	.90	.80
31	2.70	-----	1.35	3.42	-----	1.81	-----	1.79	-----	1.30	.91	-----

NOTE—Gage height Nov. 18 and 19 unsatisfactory. Stage-discharge relation Jan. 6-18 affected by ice.

*Daily discharge, in second-feet, of Oil Creek near Rouseville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	335	1,480	1,180	255	1,250	560	520	560	442	110	329	80
2	405	1,110	860	209	860	370	980	520	370	104	168	74
3	750	1,180	700	260	750	370	980	560	311	104	115	70
4	520	860	650	255	1,400	287	920	750	750	96	101	67
5	480	750	442	230	750	265	1,630	860	1,480	96	90	62
6	2,120	700	442	220	805	560	2,390	605	700	96	90	57
7	1,960	650	405	200	1,110	920	1,250	520	442	121	98	56
8	1,320	560	650	190	700	3,170	860	442	335	115	104	64
9	805	805	750	180	700	1,710	750	405	305	96	104	64
10	605	2,040	650	180	560	1,180	605	442	281	90	90	65
11	1,790	1,180	560	170	480	1,180	520	442	287	86	82	115
12	1,110	980	442	170	335	1,480	480	405	240	82	76	78
13	750	805	520	160	305	1,480	442	370	209	78	74	96
14	605	920	1,960	150	480	2,970	405	370	217	80	84	107
15	442	1,400	860	150	1,400	2,390	335	650	201	112	84	84
16	405	5,560	405	150	860	1,480	317	1,790	174	137	76	74
17	405	5,100	405	150	1,400	1,110	605	1,960	164	118	72	70
18	560	3,800	311	170	1,320	1,040	560	1,630	160	112	78	76
19	1,040	2,600	311	700	700	1,400	560	2,040	230	101	80	68
20	860	1,630	370	3,780	480	1,630	480	1,480	205	86	78	67
21	1,250	1,250	370	2,970	520	4,870	405	980	178	84	78	67
22	1,250	980	370	4,420	405	3,370	442	700	171	98	84	65
23	1,550	860	287	3,370	805	1,630	405	2,970	160	245	88	67
24	1,320	860	317	1,710	1,790	1,180	370	4,870	147	225	131	64
25	5,330	805	405	980	1,110	980	370	3,170	144	160	110	64
26	4,420	920	305	700	1,180	920	980	2,580	217	118	82	64
27	2,210	2,040	260	329	860	1,180	2,120	1,870	178	107	74	59
28	1,250	1,180	293	405	700	805	2,120	1,110	144	128	74	57
29	1,110	1,110	293	560	-----	700	1,110	805	131	140	74	74
30	980	1,960	245	2,120	-----	605	805	650	118	118	90	70
31	1,710	-----	250	2,970	-----	560	-----	560	-----	225	98	-----

NOTE—Discharge estimated Nov. 18 and 19, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with discharge at other stations, and Jan. 6-18, because of ice from weather records, study of gage height graph and comparison with similar studies for Brokenstraw Creek at Youngsville and French Creek at Saegertown.



Monthly discharge of Oil Creek near Rouseville for the year ending Sept. 30, 1927.  
(Drainage area 330 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,330	335	1,280	3.88	4.47
November	5,560	560	1,540	4.67	5.21
December	1,960	245	525	1.59	1.83
January	4,420	150	918	2.78	3.20
February	1,790	305	858	2.60	2.71
March	4,870	265	1,370	4.15	4.78
April	2,390	317	824	2.50	2.79
May	4,870	370	1,200	3.64	4.20
June	1,480	118	303	.918	1.02
July	245	78	118	.358	.41
August	329	72	98.4	.298	.34
September	115	56	71.5	.217	.24
The Year	5,560	56	758	2.30	31.20

## OHIO BASIN—STATION NO. 5

## FRENCH CREEK AT KIMMEYTOWN

*Location.*—At single-span steel highway bridge, Kimmeytown, Erie County, about 4 miles upstream from the mouth of South Branch French Creek and about 5 miles north of Union City.

*Drainage Area.*—207 square miles.

*Records Available.*—May 16, 1910, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Mrs. Edna Capron. Elevation of gage zero 1,235.7 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank begins to overflow at a stage of 8.2 feet; left is high and not subject to overflow. Bed is composed of gravel and boulders. Control for low water is at the first of a series of riffles extending from 10 to 60 feet downstream from the gage; probably shifts occasionally.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.5 feet at 7 p. m. October 25 (discharge, 5,430 second-feet); a stage of 11.0 feet, estimated from hydrograph, was reached at 11 a. m. January 22, but the water was held back by an ice jam; minimum, 0.48 foot at 7 p. m. August 28 (discharge, 10 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined to 5,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

Discharge measurements of French Creek at Kimmeytown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
39	Oct. 9a	S. A. Kowalehik	Feet	Sec.-ft.
40	July 15b	do	3.63	996
			1.06	85.6

a Measurement made from upstream side of bridge.

b Measurement made by wading 200 feet upstream from gage.

Daily Mean Gage Height, in feet, of French Creek at Kimmeytown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.46	4.48	3.80	4.20	4.02	2.28	1.89	-----	1.73	0.76	-----	0.78
2	1.39	4.80	2.88	3.95	3.15	2.21	2.10	-----	1.55	.74	-----	.76
3	1.87	3.60	2.34	4.05	2.99	2.03	2.48	-----	1.42	.76	-----	.69
4	1.78	3.28	2.08	3.90	3.13	2.03	3.07	1.70	1.74	.78	-----	.71
5	3.28	2.93	1.90	4.00	3.39	1.87	4.50	2.02	1.85	.79	-----	.67
6	5.75	3.73	1.85	3.62	3.30	2.22	4.40	1.59	1.68	.76	0.77	.62
7	6.62	3.07	1.83	3.60	3.12	3.04	2.90	1.38	1.41	.86	.78	.61
8	5.36	2.63	1.89	3.62	2.61	5.28	2.44	1.32	1.37	.87	.86	.79
9	3.62	3.78	2.60	3.62	2.41	5.33	2.18	1.29	1.18	.81	-----	.65
10	2.88	6.19	2.53	3.50	2.25	4.12	1.88	1.52	1.04	.78	-----	.66
11	2.62	4.75	2.68	3.32	1.82	3.92	1.70	1.81	1.15	.80	-----	.76
12	2.57	3.19	2.18	3.70	1.60	4.05	1.62	1.73	1.04	.77	-----	.75
13	2.40	2.32	2.40	3.30	1.62	3.86	1.51	1.72	1.02	.82	-----	.76
14	2.39	3.06	3.80	3.33	2.13	4.60	1.38	1.63	.98	.75	.79	.74
15	2.55	2.78	4.00	3.30	2.81	4.65	1.36	2.90	.92	.86	.78	.75
16	2.82	6.14	2.60	3.12	2.92	3.40	1.44	3.61	1.11	1.01	.72	.75
17	2.35	6.02	2.39	3.28	3.80	-----	1.95	3.64	.93	1.03	.73	.76
18	2.85	4.25	2.25	3.14	-----	2.70	2.06	3.50	.92	.88	.72	.77
19	3.06	3.94	2.16	3.55	2.70	3.10	1.96	3.36	1.02	.81	.70	.71
20	3.08	3.50	2.78	5.26	2.20	3.40	1.74	3.02	1.04	.72	.60	.68
21	3.80	3.50	3.38	5.54	1.99	5.15	1.54	2.55	.99	.63	.60	.69
22	3.85	3.34	2.90	6.72	1.86	4.60	1.44	2.24	.88	.72	.68	.68
23	4.25	-----	2.69	5.01	3.13	3.23	1.43	3.58	.98	1.22	.69	.61
24	5.65	2.92	2.68	4.30	3.95	2.62	1.37	6.17	.86	-----	.66	.63
25	7.84	2.90	2.30	3.50	3.73	2.50	1.30	5.08	.82	1.55	.61	.66
26	6.85	2.98	4.62	3.00	2.95	2.94	1.48	4.25	1.31	1.47	.64	.66
27	4.78	3.20	5.00	2.88	2.20	3.06	2.67	3.87	1.12	1.72	.64	.68
28	4.38	3.75	4.72	2.89	2.26	2.66	2.80	2.95	.88	1.52	.56	.63
29	3.75	3.75	4.56	2.86	-----	2.50	2.04	2.30	.84	1.25	.56	.65
30	3.51	4.00	4.28	4.25	-----	2.11	1.65	1.95	.80	-----	.68	.71
31	4.12	-----	4.20	5.00	-----	2.00	-----	1.82	-----	-----	.75	-----

NOTE—Gage height Nov. 23, Feb. 18, Mar. 17, May 1-3, July 24, July 30 to Aug. 5 and Aug. 9-13 unsatisfactory. Stage-discharge relation Dec. 17 to Jan. 22 affected by ice.



Daily discharge, in second-feet, of French Creek at Kimmeytown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	175	1,580	1,130	180	1,250	435	305	150	260	34	240	37
2	158	1,790	660	180	790	400	365	120	200	32	120	34
3	290	1,010	452	170	700	350	505	120	165	34	80	25
4	275	840	365	160	745	350	745	245	260	37	55	27
5	840	660	305	160	895	290	1,580	335	290	39	48	24
6	2,600	1,070	290	160	840	400	1,510	215	245	34	36	20
7	3,320	745	290	160	745	700	660	155	162	49	37	19
8	2,240	540	305	150	540	2,160	488	140	152	50	49	39
9	1,010	1,130	540	150	470	2,160	400	132	106	42	60	22
10	660	2,960	505	140	418	1,310	305	185	78	37	46	23
11	540	1,790	580	140	275	1,190	245	275	100	40	50	34
12	540	790	400	140	215	1,250	215	260	78	36	40	33
13	470	435	470	140	215	1,190	185	245	74	43	40	34
14	470	745	1,130	130	382	1,650	155	230	67	33	39	32
15	540	620	1,250	130	620	1,650	150	660	58	49	37	33
16	620	2,870	540	120	660	895	170	1,010	92	72	29	33
17	452	2,780	300	120	1,130	550	320	1,010	60	76	30	34
18	620	1,370	240	120	900	580	350	950	58	52	29	36
19	745	1,190	220	140	580	745	320	895	74	42	26	27
20	745	950	280	240	400	895	260	700	78	29	18	24
21	1,130	950	440	1,200	335	2,080	200	540	68	20	18	25
22	1,130	840	440	2,600	290	1,650	170	418	52	29	24	24
23	1,370	750	340	1,930	745	790	168	1,010	67	115	25	19
24	2,420	660	300	1,440	1,250	540	152	2,960	49	240	23	20
25	4,590	660	280	950	1,070	505	135	2,000	43	200	19	23
26	3,510	700	260	700	660	660	180	1,370	138	178	21	23
27	1,790	790	240	660	400	745	580	1,190	94	245	21	24
28	1,510	1,130	240	620	418	580	620	700	52	185	16	20
29	1,130	1,130	220	620	-----	505	350	435	46	122	16	22
30	950	1,250	200	1,870	-----	365	230	320	40	150	24	27
31	1,310	-----	200	1,030	-----	335	-----	275	-----	200	33	-----

NOTE—Discharge estimated Nov. 23, Feb. 18, Mar. 17, May 1-3, July 24, July 30 to Aug. 5 and Aug. 9-13, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with discharge of French Creek at Saegertown, and Dec. 17 to Jan. 22, because of ice, from weather records, study of gage height graph and comparison with similar studies for French Creek at Saegertown, Brokenstraw Creek at Youngsville, Tionesta Creek at Nebraska and Oil Creek near Rouseville.

Monthly discharge of French Creek at Kimmeytown for the year ending Sept. 30, 1927.

(Drainage area 207 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	4,590	158	1,230	5.94	6.85
November	2,960	435	1,160	5.60	6.25
December	1,250	200	433	2.09	2.41
January	2,600	120	550	2.66	3.07
February	1,250	215	642	3.10	3.23
March	2,160	290	900	4.35	5.02
April	1,580	135	401	1.94	2.16
May	2,960	120	621	3.00	3.46
June	290	40	110	.531	.59
July	240	20	82.1	.397	.46
August	240	16	43.6	.211	.24
September	39	19	27.2	.131	.15
The Year	4,590	16	516	2.49	33.89

## OHIO BASIN—STATION NO. 6

## FRENCH CREEK AT SAEGERTOWN

*Location.*—At single-span steel highway bridge, at lower end of Saegertown, Crawford County, about one-half mile upstream from the mouth of Woodcock Creek.

*Drainage Area.*—586 square miles.

*Records Available.*—April 23, 1921, to September 30, 1927.

Discharge measurements have been made at the station since August 5, 1915.

*Gage.*—Standard chain attached to upstream side of bridge; read by Frank L. Peters.

*Discharge Measurements.*—Made from upstream side of bridge, or by wading.

*Channel and Control.*—Right bank becomes inundated at a stage of 13 feet; left is high and not subject to overflow. Bed is composed of gravel and boulders. Control is at a riffle about 700 feet downstream from the gage, at the head of an island; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 11.64 feet observed at 5 p. m. October 26 (discharge, about 11,300 second-feet); minimum, 2.38 feet from 6 p. m. September 8 to 6 p. m. September 9 and at 5.30 p. m. September 27 (discharge, 67 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 500 second-feet and fairly well defined between 500 and 9,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of French Creek at Saegertown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
27	Oct. 9	S. A. Kowalchik	Feet	Sec.-ft.
28	July 16 <sup>a</sup>	do	7.42	4,150
			2.72	173

<sup>a</sup> Measurement made by wading 600 feet downstream from gage.



Daily Mean Gage Height, in feet, of French Creek at Saegertown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.86	6.70	6.30	3.55	7.60	4.48	3.89	3.55	3.78	2.66	3.65	2.64
2	3.80	6.22	5.29	3.58	6.32	4.18	4.06	3.40	3.60	2.62	3.19	2.54
3	4.22	6.52	4.79	3.60	5.43	4.06	4.56	3.48	3.42	2.60	2.94	2.48
4	3.98	5.90	4.50	3.55	5.81	3.92	4.52	3.58	3.98	2.59	2.77	2.47
5	5.40	5.46	4.05	3.48	5.50	3.88	5.30	4.06	4.65	2.59	2.72	2.44
6	7.05	5.34	3.78	3.50	5.15	4.39	7.01	3.78	4.03	2.61	2.66	2.42
7	7.99	5.31	3.91	3.56	5.64	5.68	5.96	3.48	3.67	2.64	2.67	2.42
8	8.54	5.12	4.28	4.75	5.02	7.66	4.85	3.32	3.42	2.62	2.76	2.39
9	7.75	5.68	4.88	5.88	4.60	7.95	4.26	3.24	3.25	2.62	2.80	2.38
10	5.80	7.30	4.83	5.75	4.35	6.82	3.96	3.30	3.15	2.62	2.75	2.50
11	6.85	6.82	4.56	5.70	4.08	6.16	3.75	3.52	3.12	2.58	2.69	2.55
12	6.62	6.08	4.42	5.45	3.79	6.02	3.60	3.57	3.04	2.58	2.64	2.49
13	5.39	5.62	4.80	5.39	3.55	6.08	3.56	3.52	2.98	2.53	2.58	2.56
14	4.84	5.70	6.80	5.36	4.04	6.50	3.46	3.39	2.98	2.57	2.60	2.49
15	4.40	6.30	6.30	5.40	5.45	7.02	3.34	3.75	2.91	2.64	2.62	2.56
16	4.08	8.90	4.90	5.28	5.20	6.08	3.29	5.30	2.87	2.70	2.68	2.50
17	4.20	10.15	4.18	5.30	6.20	5.22	3.48	6.10	2.82	2.97	2.60	2.48
18	4.90	9.50	3.85	5.26	6.26	4.80	3.84	5.94	2.81	2.96	2.59	2.49
19	5.90	7.85	3.82	6.12	5.21	5.46	3.74	5.97	2.86	2.82	2.53	2.49
20	5.80	7.05	3.70	7.75	4.30	6.02	3.70	5.36	2.96	2.64	2.50	2.50
21	6.40	5.98	3.78	8.36	3.91	8.05	3.58	4.88	2.94	2.59	2.50	2.45
22	7.20	5.42	3.84	9.05	3.78	8.36	3.42	4.30	2.86	2.89	2.58	2.43
23	7.48	5.16	3.80	9.38	4.95	6.96	3.32	5.43	2.85	3.55	2.52	2.40
24	7.91	5.06	3.90	8.81	6.72	5.40	3.29	7.90	2.82	3.75	2.52	2.45
25	9.80	5.32	3.99	7.55	6.25	4.84	3.32	8.72	2.81	3.58	2.51	2.40
26	11.45	5.88	3.72	6.45	5.90	4.62	3.55	8.12	2.94	3.43	2.48	2.40
27	10.60	7.20	3.70	5.43	5.00	5.08	4.59	6.88	3.09	3.24	2.50	2.38
28	8.29	7.30	3.76	5.30	4.52	5.00	5.22	5.64	2.91	3.30	2.46	2.41
29	6.94	6.38	3.70	5.18	-----	4.52	4.42	4.50	2.78	3.22	2.52	2.40
30	6.34	6.80	3.65	6.63	-----	4.26	3.86	4.20	2.72	3.50	2.60	2.44
31	6.40	-----	3.65	7.80	-----	4.10	-----	3.94	-----	3.50	2.63	-----

NOTE—Stage-discharge relation Dec. 19-23 and Jan. 6-20 affected by ice.

Daily discharge, in second-feet, of French Creek at Saegertown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	895	3,200	2,820	685	4,170	1,360	930	685	860	160	755	152
2	860	2,730	1,960	720	2,820	1,140	1,070	585	720	144	455	116
3	1,140	3,000	1,570	720	2,040	1,070	1,430	650	585	136	294	96
4	1,000	2,460	1,360	685	2,370	930	1,360	720	1,000	133	208	93
5	2,040	2,120	1,000	650	2,120	930	1,960	1,070	1,430	133	185	84
6	4,170	1,960	860	600	1,880	1,290	3,500	860	1,000	140	160	78
7	4,680	1,960	930	600	2,260	2,280	2,550	650	755	152	164	78
8	5,350	1,800	1,220	600	1,730	4,290	1,570	520	585	144	204	70
9	4,420	2,280	1,650	600	1,430	4,680	1,220	488	488	144	222	67
10	2,370	3,830	1,570	600	1,290	3,300	965	520	422	144	199	102
11	3,300	3,300	1,430	550	1,070	2,730	825	650	390	129	172	119
12	3,100	2,640	1,290	550	860	2,550	720	685	359	129	152	99
13	2,040	2,200	1,570	500	685	2,640	685	650	317	112	129	122
14	1,570	2,280	3,300	500	1,000	3,000	618	585	317	126	136	136
15	1,290	2,820	2,820	500	2,040	3,500	552	825	278	152	144	122
16	1,070	5,940	1,650	500	1,880	2,640	520	1,960	257	176	168	102
17	1,140	8,200	1,140	500	2,730	1,880	650	2,640	232	311	136	96
18	1,650	6,910	895	500	2,820	1,570	895	2,460	227	306	133	99
19	2,460	4,420	750	1,000	1,880	2,120	825	2,550	252	232	112	99
20	2,370	3,500	700	2,200	1,220	2,550	790	2,040	306	152	102	102
21	2,910	2,550	700	5,210	930	4,680	720	1,650	294	133	102	87
22	3,720	2,040	700	6,100	860	5,210	585	1,220	252	267	129	81
23	4,050	1,880	800	6,740	1,730	3,500	520	2,040	247	685	109	72
24	4,550	1,800	930	5,790	3,200	2,040	520	4,550	232	825	109	87
25	7,440	1,960	1,000	4,170	2,730	1,570	520	5,640	227	720	105	72
26	10,900	2,460	790	2,910	2,460	1,430	685	4,810	294	618	96	72
27	9,020	3,720	790	2,040	1,730	1,800	1,430	3,400	390	488	102	67
28	5,070	3,830	825	1,960	1,360	1,730	1,880	2,200	278	520	90	75
29	3,400	2,910	790	1,880	-----	1,360	1,290	1,360	213	455	109	72
30	2,820	3,300	755	3,100	-----	1,220	895	1,140	185	650	136	84
31	2,910	-----	755	4,420	-----	1,070	-----	965	-----	650	148	-----

NOTE—Discharge Dec. 19-23 and Jan. 6-20 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for French Creek at Kimmeytown, Brokenstraw Creek at Youngsville, Oil Creek near Rouseville and Shenango River at Sharon.

Monthly discharge of French Creek at Saegertown for the year ending Sept. 30, 1927. (Drainage area 586 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	10,900	860	3,350	5.72	6.60
November	8,200	1,800	3,130	5.34	5.96
December	3,300	700	1,270	2.17	2.50
January	6,740	500	1,870	3.19	3.68
February	4,170	685	1,900	3.24	3.37
March	5,210	930	2,320	3.96	4.56
April	3,500	520	1,090	1.86	2.08
May	5,640	488	1,640	2.80	3.23
June	1,430	185	446	.761	.85
July	825	112	299	.510	.59
August	755	90	176	.300	.35
September	152	67	93.4	.159	.18
The Year	10,900	67	1,470	2.51	33.95

## OHIO BASIN—STATION NO. 7

## CUSSEWAGO CREEK NEAR MEADVILLE

*Location.*—At single-span steel highway bridge near Jones' Farm, about four and one-half miles northwest of Meadville, Crawford County.

*Drainage Area.*—88 square miles.

*Records Available.*—May 3, 1910, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Thomas McCay. Elevation of gage zero 1,071.77 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are subject to overflow; the right becomes inundated at a stage of about 8.6 feet and the left at about 9.1 feet. Bed is composed of sand, gravel and boulders. Low-water control is a gravel bar 5 feet downstream from the gage; practically permanent. Control for medium and high stages is an old dam about 4 miles downstream from the station.

*Extremes of Discharge.*—Maximum stage during the year, estimate from hydrograph, 11.2 feet at 2 a. m. October 26 (discharge, about 1,200 second-feet); minimum, 0.58 foot at 7 a. m. September 10 (discharge, 1.9 second-feet).



*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 900 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Discharge measurements of Cussewago Creek near Meadville during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
44	July 16	S. A. Kowalchik	1.04	8.18

Measurement made by wading 5 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Cussewago Creek near Meadville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.98	7.62	7.74	3.08	9.42	5.42	3.02	2.66	2.89	0.90	1.73	1.36
2	3.40	7.74	7.39	3.06	8.80	4.62	3.28	2.30	2.47	.84	1.55	1.05
3	4.18	7.56	5.32	3.04	7.46	4.32	4.17	2.26	2.14	.81	1.18	.89
4	4.47	7.11	4.07	3.06	6.55	3.82	4.26	2.50	2.70	.78	1.00	.78
5	4.85	6.04	3.81	3.10	6.72	3.59	4.95	3.36	5.72	.75	.90	.71
6	7.46	5.44	3.90	3.15	6.14	4.25	6.95	2.94	5.98	.77	.83	.67
7	9.46	5.46	3.65	3.05	6.58	6.70	7.40	2.40	4.05	.80	.90	.64
8	9.22	4.94	3.66	3.02	6.54	8.35	5.17	2.07	2.84	.82	1.15	.61
9	8.96	5.22	4.47	2.90	5.20	9.59	3.44	1.92	2.33	.82	1.98	.60
10	8.32	6.78	5.12	2.84	4.42	8.74	2.96	2.04	2.04	.79	1.56	.95
11	7.43	7.28	4.88	2.79	3.92	6.79	2.64	2.20	1.92	.74	1.18	3.05
12	7.24	6.94	4.40	2.74	3.14	5.36	2.40	2.42	1.90	.72	.98	2.55
13	7.62	5.66	4.67	2.74	3.00	5.10	2.38	2.28	1.65	.84	.86	1.79
14	6.84	5.30	7.00	2.88	3.50	5.40	2.56	2.15	1.58	.82	.84	1.67
15	4.55	5.83	7.84	3.16	5.82	6.56	2.38	2.50	1.51	.85	.84	1.46
16	3.54	8.05	7.94	3.34	6.20	6.08	2.17	4.70	1.42	.98	1.03	1.12
17	4.08	10.29	6.44	3.28	6.52	4.62	2.83	6.20	1.29	1.10	1.13	.93
18	5.82	9.48	4.08	3.10	7.35	4.06	3.28	5.96	1.23	1.65	.96	.85
19	7.38	8.85	3.02	3.96	6.76	5.04	2.89	6.30	1.38	1.46	.84	.89
20	7.76	8.24	2.62	7.35	5.13	6.25	2.58	6.24	1.86	1.09	.77	.86
21	8.08	7.66	2.82	8.32	4.33	8.14	2.32	4.84	1.90	.89	.72	.80
22	7.98	6.10	3.22	10.00	3.84	9.55	2.10	3.68	1.62	1.37	.70	.74
23	7.85	5.28	3.26	10.62	4.42	-----	2.00	5.54	1.47	4.97	.68	.72
24	8.22	5.18	3.20	10.00	6.95	-----	1.94	8.00	1.29	5.95	.70	.72
25	10.08	5.56	4.03	9.36	7.91	4.86	2.14	9.29	1.22	4.76	.68	.72
26	10.75	6.36	4.52	8.46	8.22	4.28	3.05	9.18	1.30	2.64	.66	.68
27	9.76	7.65	3.66	5.82	7.75	4.50	4.53	8.83	1.37	1.80	.63	.66
28	9.18	8.45	3.27	4.08	7.08	4.64	5.95	8.17	1.21	1.42	.62	.64
29	8.68	8.66	3.21	4.05	-----	4.02	5.25	4.45	1.06	1.22	.65	.71
30	8.18	7.98	3.13	6.53	-----	3.54	3.48	3.22	.97	1.25	1.33	.94
31	7.88	-----	3.08	8.12	-----	3.26	-----	2.90	-----	1.62	1.73	-----

NOTE—Stage-discharge relation Dec. 21 to Jan. 20 and Jan. 29 to Feb. 16 affected by ice. Gage height Mar. 23 and 24 unsatisfactory.

*Daily discharge, in second-feet, of Cussewago Creek near Meadville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	453	469	60	650	213	72	56	67	5.4	24	14
2	92	469	422	60	340	163	87	42	48	4.5	19	8.0
3	139	453	206	60	200	145	139	40	36	4.1	11	5.2
4	157	379	133	65	200	115	145	50	58	3.7	7.0	3.7
5	175	257	115	65	300	103	187	92	234	3.4	5.4	3.0
6	437	213	121	60	200	139	365	70	257	3.6	4.4	2.6
7	806	220	103	60	280	328	422	46	127	4.0	5.4	2.3
8	745	181	109	55	220	592	199	34	64	4.2	10	2.1
9	705	199	157	50	170	827	92	29	44	4.2	32	2.0
10	574	340	193	48	130	648	70	34	34	3.9	19	6.2
11	422	407	181	46	95	340	56	38	29	3.3	11	72
12	392	352	151	44	70	213	46	46	29	3.1	6.7	52
13	452	234	169	44	65	193	46	42	22	4.5	4.8	26
14	344	206	365	42	75	213	52	36	20	4.2	4.5	22
15	167	241	485	40	130	316	46	50	18	4.6	4.5	17
16	67	520	502	40	220	265	36	169	16	6.7	7.6	9.4
17	132	990	295	40	305	163	64	275	13	9.0	9.6	5.8
18	241	806	133	42	422	133	87	257	12	22	6.3	4.6
19	422	667	72	60	340	187	67	285	15	17	4.5	5.2
20	485	556	54	180	193	275	54	275	28	8.8	3.6	4.8
21	538	469	60	574	145	538	42	175	29	5.2	3.1	4.0
22	520	265	70	520	115	827	35	109	20	14	2.9	3.3
23	485	206	75	1,060	151	500	32	220	17	187	2.7	3.1
24	556	199	70	920	365	280	30	520	13	257	2.9	3.1
25	940	227	90	785	502	181	36	765	11	175	2.7	3.1
26	1,110	295	110	610	556	145	72	745	13	56	2.5	2.7
27	872	455	90	241	485	157	157	667	14	26	2.3	2.5
28	745	592	80	133	379	163	257	556	11	16	2.2	2.3
29	648	648	70	90	-----	127	199	151	8.2	11	2.4	3.0
30	556	520	70	180	-----	97	97	82	6.5	12	14	6.0
31	502	-----	65	360	-----	87	-----	67	-----	20	24	-----

NOTE—Discharge estimated Dec. 21 to Jan. 20 and Jan. 29 to Feb. 16, because of ice, from weather records, study of gage height graph and comparison with similar studies for Oil Creek near Rouseville, French Creek at Kimmeytown and Saegertown, Little Shenango River at Greenville and discharge of Clarion River near Piney, and Mar. 23 and 24, because of unsatisfactory gage height record, from weather records and study of gage height graph.

*Monthly discharge of Cussewago Creek near Meadville for the year ending Sept. 30, 1927.*

(Drainage area 88 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,110	92	470	5.34	6.16
November	990	181	401	4.56	5.09
December	502	60	179	1.93	2.22
January	1,060	40	227	2.58	2.97
February	650	65	261	2.97	3.09
March	827	87	280	3.18	3.67
April	422	30	110	1.25	1.40
May	765	29	194	2.20	2.54
June	257	6.5	43.8	.498	.56
July	257	3.1	29.1	.331	.38
August	32	2.2	8.45	.097	.11
September	72	2.0	10.0	.114	.13
The Year	1,110	2.0	184	2.09	28.32



## OHIO BASIN—STATION NO. 8

## ALLEGHENY RIVER AT FRANKLIN

*Location.*—At four-span steel highway bridge, Eighth Street, Franklin, Venango County.

*Drainage Area.*—6,010 square miles.

*Records Available.*—April 1, 1905, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge in first span from left end; read by W. C. Rivers. Elevation of gage zero 958.26 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge.

*Channel and Control.*—Both banks are high and do not overflow until a stage of 22 feet is reached. Bed is composed of gravel and boulders. Control is at a riffle, 200 feet long, about 1,000 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 11.4 feet at 3 a. m. November 17 (discharge, 60,100 second-feet); minimum, 0.04 foot from 8 a. m. September 27 to 6 p. m. September 28 (discharge, 712 second-feet).

*Ice.*—Stage discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 800 and 110,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

*Discharge measurements of Allegheny River at Franklin during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
23	July 13	S. A. Kowalchik	Feet 0.42	Sec.-ft. 1,210

*Daily Mean Gage Height, in feet, of Allegheny River at Franklin for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.06	6.69	6.42	1.84	7.03	4.26	3.78	4.17	4.15	0.86	2.38	0.48
2	2.85	6.39	5.72	1.78	6.37	3.77	3.95	3.65	3.59	.76	2.60	.44
3	3.29	6.16	4.92	1.72	5.65	3.33	4.40	3.39	3.16	.67	1.92	.37
4	3.10	5.73	4.28	1.70	5.37	3.01	4.36	3.29	3.17	.60	1.52	.32
5	2.90	5.03	3.76	1.68	5.51	2.96	4.58	3.77	3.90	.55	1.22	.24
6	5.72	4.68	3.17	1.66	5.17	3.15	6.99	3.89	3.61	.56	.98	.18
7	6.38	4.47	2.78	1.64	5.03	3.91	7.01	3.59	3.17	.61	.86	.15
8	6.18	4.25	3.11	1.62	4.93	6.18	6.02	3.28	2.73	.62	.82	.14
9	5.74	4.27	4.18	1.48	4.33	7.50	5.20	3.01	2.44	.66	.79	.12
10	5.16	5.23	3.96	1.34	3.95	6.92	4.55	2.94	2.22	.64	.74	.11
11	5.31	5.41	3.76	1.36	3.64	6.24	4.08	3.05	2.07	.60	.68	.42
12	5.35	5.03	3.56	1.42	3.31	6.42	3.62	3.02	1.93	.52	.62	.51
13	4.61	4.54	3.51	1.52	3.03	7.04	3.36	2.94	1.79	.38	.56	.46
14	3.97	4.29	4.95	1.62	2.99	8.44	3.09	2.79	1.73	.40	.50	.43
15	3.51	4.51	5.25	1.71	4.29	9.43	2.82	3.15	1.61	.54	.46	.38
16	3.14	8.51	4.18	2.90	4.71	8.63	2.63	4.73	1.45	.62	.46	.34
17	2.95	11.11	3.38	3.63	5.24	7.60	2.86	5.69	1.33	.64	.48	.25
18	3.19	10.02	2.72	4.02	6.39	6.78	2.95	5.46	1.26	.80	.48	.22
19	3.80	9.37	2.01	4.55	6.01	6.71	2.90	5.83	1.26	.78	.46	.30
20	4.16	8.35	2.42	5.99	5.01	6.98	2.83	5.57	1.33	.68	.44	.21
21	4.28	7.33	2.90	7.09	4.07	9.78	2.64	4.94	1.29	.56	.51	.18
22	4.63	6.47	2.84	8.79	3.61	10.54	2.81	4.39	1.20	.79	.56	.14
23	4.85	5.76	2.70	9.34	4.08	9.42	3.04	6.05	1.16	1.22	.50	.10
24	5.61	5.06	2.56	8.10	5.79	8.00	2.90	8.87	1.12	1.58	.56	.08
25	8.81	4.65	2.36	7.10	6.41	6.78	2.78	10.09	1.08	1.67	.90	.07
26	10.21	4.67	2.22	6.03	6.31	6.79	2.18	10.33	1.42	1.62	.73	.06
27	9.55	5.39	2.15	4.77	5.81	5.40	4.56	9.21	1.54	1.42	.56	.04
28	8.23	5.74	2.07	3.96	4.87	5.14	5.94	7.93	1.46	1.14	.45	.04
29	7.17	5.51	2.06	3.97	-----	4.87	5.60	6.80	1.20	1.05	.42	.13
30	6.47	6.36	2.02	5.07	-----	4.41	4.79	5.86	1.00	.96	.48	.13
31	6.39	-----	1.86	7.09	-----	4.04	-----	4.95	-----	1.61	.51	-----

NOTE—Stage-discharge relation Jan. 16-19 affected by ice.

*Daily discharge, in second-feet, of Allegheny River at Franklin for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9,500	28,200	26,400	4,650	30,000	14,800	12,500	14,300	14,300	1,970	6,800	1,340
2	8,300	26,400	22,200	4,650	26,400	12,500	13,300	11,500	11,500	1,760	7,520	1,260
3	10,300	25,200	17,800	4,350	21,600	10,300	15,300	10,700	9,900	1,580	5,000	1,110
4	9,500	22,200	14,800	4,350	20,400	9,100	15,300	10,300	9,900	1,500	3,700	1,040
5	8,700	18,300	12,500	4,350	21,000	9,100	16,300	12,500	12,900	1,420	2,810	970
6	22,200	16,800	9,900	4,350	19,300	9,900	30,000	12,900	11,500	1,420	2,300	900
7	26,400	15,800	8,300	4,000	18,300	12,900	30,000	11,500	9,900	1,500	1,970	842
8	25,200	14,300	9,500	4,000	17,800	25,200	24,000	10,300	7,220	1,500	1,860	842
9	22,200	14,800	14,300	3,700	14,800	33,000	19,300	9,100	6,800	1,580	1,860	775
10	19,300	19,300	13,300	3,250	13,300	29,400	16,300	8,700	6,040	1,580	1,760	775
11	19,800	20,400	12,500	3,250	11,500	25,200	13,800	9,100	5,700	1,500	1,670	1,180
12	20,400	18,300	11,500	3,400	10,300	26,400	11,500	9,100	5,000	1,340	1,500	1,340
13	16,300	15,800	11,100	3,700	9,100	30,000	10,700	8,700	4,650	1,180	1,420	1,260
14	13,300	14,800	18,300	4,000	9,100	39,100	9,500	8,300	4,350	1,180	1,340	1,260
15	11,100	15,800	19,300	4,350	14,800	46,100	8,300	9,900	4,000	1,420	1,260	1,180
16	9,500	39,800	14,300	4,400	16,800	40,500	7,520	16,800	3,550	1,500	1,260	1,110
17	9,100	58,000	10,700	4,000	19,300	33,600	8,700	22,200	3,250	1,580	1,340	970
18	9,900	50,300	7,920	4,000	26,400	28,800	9,100	21,000	2,960	1,860	1,340	900
19	12,500	46,100	5,350	9,000	24,000	28,200	8,700	22,800	2,960	1,860	1,260	1,040
20	14,300	39,100	6,800	24,000	18,300	30,000	8,300	21,600	3,250	1,670	1,260	900
21	14,800	31,800	8,700	30,600	13,800	48,900	7,520	17,800	3,100	1,420	1,340	900
22	16,300	27,000	8,300	41,900	11,500	53,800	8,300	15,300	2,810	1,860	1,420	842
23	17,300	22,800	7,920	45,400	13,800	46,100	9,100	24,000	2,680	2,810	1,340	775
24	21,600	18,800	7,520	37,000	22,800	36,300	8,700	42,600	2,550	4,000	1,420	775
25	41,900	16,300	6,800	30,600	26,400	28,800	8,300	51,000	2,550	4,350	2,080	712
26	51,700	16,800	6,040	24,000	25,800	28,800	6,040	52,400	3,400	4,000	1,760	712
27	47,500	20,400	6,040	17,300	22,800	20,400	16,300	44,700	3,700	3,400	1,420	712
28	37,700	22,200	5,700	13,300	17,800	-----	18,800	23,400	3,550	2,680	1,260	712
29	31,200	21,000	5,700	13,300	-----	17,800	21,600	28,800	2,810	2,420	1,180	842
30	27,000	26,400	5,350	18,800	-----	15,300	17,300	23,400	2,300	2,190	1,340	842
31	26,400	-----	5,000	30,600	-----	13,300	-----	18,300	-----	4,000	1,340	-----

NOTE—Discharge Jan. 16-19 estimated, because of ice, from weather records, study of gage height graph, discharge of Allegheny River at Red House and comparison with similar studies for Allegheny River at Kittanning.



Monthly discharge of Allegheny River at Franklin for the year ending Sept. 30, 1927.  
(Drainage are 6,010 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	51,700	8,300	20,400	3.39	3.91
November	58,000	14,300	24,800	4.13	4.61
December	26,400	5,000	11,000	1.83	2.11
January	45,400	3,250	13,200	2.20	2.54
February	30,000	9,100	18,500	3.08	3.21
March	53,800	9,100	26,500	4.41	5.08
April	30,000	6,040	13,800	2.30	2.57
May	52,400	8,300	19,800	3.29	3.79
June	14,300	2,300	5,660	.942	1.05
July	4,350	1,180	2,070	.344	.40
August	7,520	1,180	2,100	.349	.40
September	1,340	712	961	.160	.18
The Year	58,000	712	13,200	2.20	29.85

## OHIO BASIN—STATION NO. 9

## EAST BRANCH CLARION RIVER AT INSTANTER

*Location.*—At single-span steel highway bridge, Instanter, Elk County, about 30 feet downstream from the mouth of Seven Mile Creek.

*Drainage Area.*—39 square miles.

*Records Available.*—December 10, 1924, to October 6, 1926, when the station was discontinued.

*Gage.*—Standard chain attached to downstream side of bridge; read by A. L. Anderson.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Banks are low but do not overflow except during extremely high stages. Bed is composed of gravel and boulders. Control is at a riffle about 90 feet downstream from the gage; permanent.

*Extremes of Discharge.*—Maximum stage during the period December 10, 1924, to October 6, 1926, estimated from hydrograph, 6.4 feet at 11 p. m. February 11, 1925, and at midnight September 25-26, 1926 (discharge, 730 second-feet); minimum, 1.61 feet at 7.30 a. m. August 28, 1925 (discharge, 2.6 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined below 75 second-feet and fairly well defined between 75 and 200 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages when they may be only fair.

*Cooperation.*—Station maintained in cooperation with Tannery Waste Disposal Committee of Pennsylvania.

Daily Mean Gage Height, in feet, of East Branch Clarion River at Instanter for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.11											
2	3.12											
3												
4	3.23											
5	3.16											
6	3.90											
7												
8												
9												
10												
11												
12												
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27												
28												
29												
30												
31												

NOTE—Gage height not observed on Oct. 3. Station discontinued Oct. 6, 1926.



Daily discharge, in second-feet, of East Branch Clarion River at Instanter for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91											
2	91											
3	100											
4	104											
5	96											
6	174											
7												
8												
9												
10												
11												
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29												
30												
31												

NOTE—Discharge Oct. 3 estimated, because of no gage height record, from discharge of Clarion River near Piney and other stations in adjacent drainage basins. Station discontinued Oct. 6, 1926.

Monthly discharge of East Branch Clarion River at Instanter for the year ending Sept. 30, 1927.  
(Drainage area 39 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October (1-6)	174	91	109	2.79	0.62
November					
December					
January					
February					
March					
April					
May					
June					
July					
August					
September					
The Year					

NOTE—Station discontinued October 6, 1926.

# OHIO BASIN—STATION NO. 10

## CLARION RIVER NEAR PINEY

*Location.*—At hydro-electric plant dam of the Penn Public Service Corporation about two and one-half miles upstream from Piney, Clarion County.

*Drainage Area.*—980 square miles.

*Records Available.*—October 1, 1924, to September 30, 1927.

*Computations of Discharge.*—From records of turbine discharge, rated gate openings, flow over dam and changes in amount of storage.

Record furnished by Penn Public Service Corporation, Johnstown, Pennsylvania.

Daily discharge, in second-feet, of Clarion River at Piney Dam for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,286	3,109	3,633	787	3,402	2,612	1,996	2,530	2,130	281	204	150
2	1,993	2,605	3,009	699	2,804	2,147	2,658	2,096	1,776	263	248	109
3	2,759	2,493	2,619	602	2,527	2,015	3,586	2,001	1,497	208	289	116
4	2,812	2,218	2,326	712	2,894	1,710	3,124	2,143	1,707	255	255	104
5	2,582	1,839	2,022	737	2,780	1,523	3,065	3,411	3,087	185	159	104
6	4,576	1,553	1,311	625	2,565	1,845	4,248	2,700	3,505	220	139	81
7	3,905	1,784	1,325	506	3,091	2,583	3,577	2,307	2,242	248	112	69
8	3,404	1,522	1,558	460	2,721	7,413	3,136	2,152	1,864	274	255	69
9	2,714	1,444	2,284	475	2,408	6,338	2,689	1,839	1,606	255	278	75
10	2,292	1,759	1,951	363	2,270	4,487	2,453	1,742	1,395	220	509	121
11	2,646	1,760	1,657	450	2,086	4,242	2,112	1,673	1,172	174	262	139
12	2,903	1,425	1,684	521	1,735	4,292	1,848	1,514	1,106	153	165	150
13	2,251	1,319	1,739	466	1,717	4,410	1,609	1,311	966	139	156	137
14	2,068	1,347	3,120	556	1,700	5,952	1,482	1,276	908	185	150	150
15	1,791	1,333	2,876	684	3,656	6,846	1,326	1,562	943	201	139	69
16	1,557	3,851	1,956	649	3,263	5,222	1,137	2,162	866	174	216	104
17	1,449	5,627	1,459	538	4,146	4,178	1,335	2,569	923	165	185	81
18	1,417	4,370	1,354	513	4,063	3,620	1,454	2,415	576	174	157	108
19	1,753	5,425	966	2,030	3,609	4,549	1,238	3,114	204	207	150	73
20	1,531	4,546	1,211	8,811	3,120	5,363	1,240	3,888	822	185	220	70
21	1,519	3,660	1,635	9,880	2,657	10,043	1,170	3,490	779	139	180	104
22	1,345	3,112	1,473	12,542	2,300	9,995	1,679	2,309	597	39	310	116
23	1,403	2,702	1,064	12,118	3,176	6,758	1,793	3,947	497	302	284	35
24	1,624	2,264	804	7,032	4,861	4,725	1,502	5,994	420	336	224	69
25	5,297	2,067	1,331	4,780	3,887	3,866	1,424	7,652	374	255	185	69
26	6,174	1,917	1,196	3,339	4,167	3,196	1,470	7,902	556	194	138	35
27	4,270	2,193	757	2,222	3,686	3,098	2,582	6,421	656	150	116	54
28	3,590	2,617	922	2,077	3,034	2,919	4,279	4,790	522	139	104	69
29	2,701	2,192	941	2,558	-----	2,652	3,354	3,558	370	170	104	81
30	2,462	3,947	792	3,831	-----	2,405	2,890	3,032	282	150	121	46
31	2,683	-----	627	5,185	-----	2,194	-----	2,710	-----	357	139	-----



Monthly discharge of Clarion River near Piney for the year ending Sept. 30, 1927.  
(Drainage area 980 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	6,174	1,345	2,640	2.69	3.10
November	5,627	1,319	2,600	2.65	2.96
December	3,633	627	1,660	1.69	1.95
January	12,542	363	2,800	2.86	3.30
February	4,861	1,700	3,010	3.07	3.20
March	10,043	1,523	4,300	4.39	5.06
April	4,279	1,137	2,250	2.30	2.57
May	7,902	1,276	3,100	3.16	3.64
June	3,505	204	1,140	1.16	1.29
July	357	39	206	.210	.24
August	509	104	198	.202	.23
September	150	35	91.9	.094	.10
The Year	12,542	35	2,000	2.04	27.64

## OHIO BASIN—STATION NO. 11

## RED BANK CREEK AT SAINT CHARLES

*Location.*—At single-span steel railroad bridge, Saint Charles, Clarion County.

*Drainage Area.*—540 square miles.

*Records Available.*—October 19, 1909, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by W. H. Bish. Elevation of gage zero 976.24 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of rocks and fairly regular. Control is at the first of a series of riffles, where the bed is composed of large boulders and ledge, about 200 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 10.1 feet at 11 p. m. January 22 (discharge, about 15,000 second-feet); minimum, 0.94 foot at 4 p. m. September 29 (discharge, 42 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,000 second-feet and fairly well defined between 1,000 and 10,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Red Bank Creek at Saint Charles during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
33	June 13	S. A. Kowalchik	Feet 2.20	Sec.-ft. 455

Daily Mean Gage Height, in feet, of Red Bank Creek at Saint Charles for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.78	3.38	3.70	2.18	3.32	3.21	2.86	2.67	2.59	1.32	1.49	1.15
2	2.78	3.48	3.38	2.17	3.32	3.21	4.08	2.58	2.37	1.21	1.36	1.11
3	2.90	3.26	3.05	2.05	3.15	3.00	4.24	2.51	2.21	1.19	1.35	1.15
4	2.98	3.10	2.93	2.14	3.62	2.75	4.28	2.77	3.07	1.21	1.29	1.17
5	3.10	2.90	2.63	2.09	3.42	2.70	4.58	3.56	5.67	1.25	1.18	1.15
6	4.20	2.70	2.19	2.10	3.31	3.37	4.96	3.18	4.80	1.26	1.14	1.05
7	3.88	2.56	2.23	1.96	4.35	4.25	4.38	2.75	4.20	1.44	1.22	1.01
8	3.50	2.42	2.79	1.88	3.62	7.29	3.94	2.63	3.37	1.44	1.45	1.02
9	3.25	2.45	3.03	1.92	3.37	5.99	3.51	2.55	2.88	1.64	1.37	.99
10	2.78	2.45	2.88	1.94	3.19	5.12	3.24	2.51	2.55	1.46	1.33	1.03
11	3.29	2.51	2.95	1.92	3.01	4.59	2.94	2.50	2.27	1.35	1.34	1.07
12	2.88	2.50	2.88	2.06	2.82	4.49	2.68	2.40	2.24	1.34	1.22	1.56
13	2.69	2.41	3.15	1.91	3.07	4.46	2.46	2.25	2.22	1.26	1.15	1.45
14	2.52	2.27	4.50	1.98	3.57	4.39	2.38	2.82	2.21	1.25	1.08	1.27
15	2.50	2.35	3.90	2.12	4.87	4.39	2.27	2.92	2.29	1.23	1.55	1.24
16	2.30	4.12	3.46	2.34	4.47	4.22	2.20	3.00	2.19	1.25	1.51	1.16
17	2.48	4.98	2.66	2.48	4.92	3.59	2.23	2.99	1.99	1.26	1.49	1.11
18	2.79	4.22	2.55	2.47	4.69	3.79	2.29	3.02	1.89	1.25	1.35	1.25
19	3.22	5.20	2.47	4.45	4.32	4.35	2.34	3.98	1.78	1.25	1.34	1.19
20	3.60	4.48	2.46	8.25	3.79	5.77	2.33	4.57	2.15	1.20	1.26	1.18
21	2.89	3.80	2.44	8.85	3.59	7.65	2.86	4.15	2.04	1.15	1.23	1.17
22	2.87	3.50	2.60	9.10	3.24	6.95	3.35	3.63	1.84	1.18	1.29	1.17
23	2.70	3.11	2.45	7.87	3.59	5.57	3.15	3.23	1.75	1.90	1.25	1.11
24	3.02	2.41	5.32	4.87	4.82	2.72	4.13	1.70	3.00	1.19	.99	
25	5.90	2.98	2.36	4.17	4.85	4.22	2.61	4.65	1.64	2.70	1.12	.98
26	5.42	2.85	2.36	3.70	4.58	2.61	4.77	1.68	1.68	1.06	1.06	1.01
27	4.38	2.96	2.41	2.68	4.28	3.41	4.47	1.66	1.47	1.00	.97	
28	3.65	2.99	2.36	2.77	3.36	3.51	3.93	1.55	1.28	1.03	.99	
29	3.52	2.76	2.33	4.20	3.09	3.06	3.27	1.42	1.23	.99	.95	
30	3.68	3.90	2.22	3.92	2.99	2.83	2.79	1.31	1.21	1.07	.98	
31	3.32		2.12	3.65	2.84		2.61		1.33	1.08		

NOTE—Gage height Oct. 24, Feb. 1 and 26-28 unsatisfactory. Stage-discharge relation Dec. 11-20, 24, 25, Dec. 28 to Jan. 19 and Jan. 28-30 affected by ice.



Daily discharge, in second-feet, of Red Bank Creek at Saint Charles for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	826	1,330	1,670	300	1,300	1,550	860	728	696	110	157	76
2	826	1,440	1,330	260	1,230	1,140	2,190	696	548	87	120	68
3	895	1,230	970	240	1,140	970	2,330	635	465	83	118	76
4	970	1,050	932	240	1,550	793	2,480	793	1,050	87	103	79
5	1,050	895	728	220	1,330	760	2,930	1,550	4,860	95	81	76
6	2,330	760	465	220	1,230	1,330	3,580	1,140	3,250	97	74	58
7	1,920	664	492	200	2,630	2,330	2,630	793	2,330	142	89	52
8	1,440	576	826	200	1,550	8,190	1,920	728	1,330	142	145	53
9	1,140	606	970	200	1,330	5,450	1,440	664	895	206	122	49
10	826	606	895	200	1,140	3,750	1,140	635	664	148	112	55
11	1,230	635	750	190	970	2,930	932	635	492	118	115	61
12	895	635	800	190	826	2,780	760	576	492	115	89	179
13	760	576	900	190	1,050	2,780	606	492	465	97	76	145
14	635	492	1,600	190	1,550	2,630	576	826	465	95	63	99
15	635	548	1,400	190	3,410	2,630	492	895	520	91	176	93
16	520	2,190	950	190	2,780	2,330	465	970	465	95	163	77
17	635	3,580	650	190	3,410	1,550	492	970	355	97	157	68
18	826	2,330	500	220	3,090	1,790	520	970	309	95	118	95
19	1,140	3,930	440	1,400	2,480	2,630	548	2,050	260	95	115	83
20	1,550	2,780	460	10,200	1,790	5,050	548	2,930	438	85	97	81
21	895	1,790	606	11,800	1,550	8,850	860	2,330	385	76	91	79
22	860	1,440	696	12,600	1,140	7,530	1,330	1,550	286	81	103	79
23	760	1,050	606	9,540	1,550	4,670	1,140	1,140	248	314	95	68
24	1,300	970	440	4,110	3,410	3,250	760	2,190	228	970	83	49
25	5,250	970	460	2,330	3,250	2,330	696	2,930	206	760	70	47
26	4,290	860	548	1,670	3,000	2,930	696	3,250	221	221	60	52
27	2,630	932	576	760	2,400	2,480	1,330	2,780	214	151	50	46
28	1,550	970	500	700	2,000	1,330	1,440	1,920	176	101	55	49
29	1,440	793	400	800	-----	1,050	1,050	1,230	136	91	49	44
30	1,670	1,920	360	1,100	-----	970	860	826	108	87	61	47
31	1,230	-----	320	1,550	-----	860	-----	696	-----	112	63	-----

NOTE—Discharge estimated Oct. 24, Feb. 1 and 26-28, because of unsatisfactory gage height record, from weather records and study of gage height graph, and Dec. 11-20, 24, 25, Dec. 28 to Jan. 19 and Jan. 28-30, because of ice, from weather records, study of gage height graph and comparison with similar studies for Tionesta Creek at Nebraska, Oil Creek near Rouseville, Clarion River near Piney and Mahoning Creek near Dayton.

Monthly discharge of Red Bank Creek at Saint Charles for the year ending Sept. 30, 1927.

(Drainage area 540 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,250	520	1,380	2.56	2.95
November	3,930	492	1,280	2.37	2.64
December	1,670	320	750	1.39	1.60
January	12,600	190	2,010	3.72	4.29
February	3,410	826	1,930	3.57	3.72
March	8,850	760	2,890	5.35	6.17
April	3,580	465	1,250	2.31	2.58
May	3,250	492	1,310	2.43	2.80
June	4,860	108	752	1.39	1.55
July	970	76	166	.307	.35
August	176	49	99.0	.183	.21
September	179	44	72.8	.135	.15
The Year	12,600	44	1,160	2.15	29.01

OHIO BASIN—STATION NO. 12

## MAHONING CREEK NEAR DAYTON

*Location.*—At single-span steel highway bridge, known as Independence Bridge, about three miles northwest of Dayton, Armstrong County.

*Drainage Area.*—322 square miles.

*Records Available.*—August 12, 1916, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by La Vern Mathews.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and boulders. Control for low stages is at the first of a series of riffles about 50 feet downstream from the gage; practically permanent; for high stages a dam about one mile downstream.

*Extremes of Discharge.*—Maximum open-water stage during the year estimated from hydrograph, 8.2 feet at 11 a. m. March 21, (discharge, 7,160 second-feet); a stage of 9.6 feet, estimated from hydrograph, was reached at midnight January 18-19, but the water was held back by an ice jam; minimum, 1.52 feet at 4 p. m. September 6 (discharge, 19 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined between 40 and 1,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for extreme stages when they are fair.

Discharge measurements of Mahoning Creek near Dayton during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
17	June 15	S. A. Kowalechik	2.76	441



Daily Mean Gage Height, in feet, of Mahoning Creek near Dayton for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.03	4.12	3.42	2.68	3.87	3.94	3.51	2.95	3.16	1.89	2.53	1.69
2	3.03	4.00	3.34	2.77	3.69	3.54	4.21	3.23	3.11	1.82	2.56	1.67
3	3.16	3.82	3.29	2.71	3.72	3.38	5.06	3.30	2.91	1.75	2.40	1.63
4	3.28	3.70	3.10	2.82	3.59	3.25	4.81	3.47	3.33	1.82	2.19	1.60
5	3.25	3.55	3.79	2.85	4.07	3.18	4.74	3.30	5.09	1.83	2.08	1.57
6	3.33	3.38	3.68	2.78	4.55	4.06	4.84	3.19	4.85	1.85	1.98	1.53
7	3.25	3.20	3.44	2.68	4.25	5.74	4.61	3.11	4.45	2.08	1.97	1.63
8	3.05	3.09	3.29	2.55	4.10	6.66	4.23	3.06	3.77	1.98	2.02	1.67
9	2.88	3.02	3.18	2.95	4.00	6.68	3.67	3.00	3.35	1.91	2.01	1.61
10	2.79	3.27	3.15	2.90	3.85	6.11	3.39	3.03	3.13	1.87	1.98	1.94
11	2.75	3.16	3.13	2.95	3.59	5.68	3.29	3.02	2.92	1.85	1.96	1.90
12	2.71	2.92	3.09	2.97	3.33	5.24	3.18	2.93	2.77	1.83	1.93	1.87
13	2.72	2.76	3.20	2.97	3.46	4.61	3.11	2.85	-----	1.82	1.89	1.89
14	2.64	2.65	3.35	2.97	5.62	4.26	3.10	2.78	-----	1.80	1.97	1.89
15	2.61	2.58	3.42	2.97	5.42	3.86	3.04	2.87	-----	1.80	1.95	1.88
16	2.56	3.75	3.30	2.97	5.22	3.54	2.99	2.97	-----	1.85	1.93	1.86
17	2.57	4.15	3.27	2.97	4.97	3.38	2.96	3.10	-----	1.82	1.89	1.84
18	2.61	4.00	3.23	4.77	4.59	3.96	2.93	3.50	-----	1.75	1.90	1.98
19	2.75	4.82	3.20	8.67	4.42	5.56	2.79	5.55	2.42	1.62	1.87	2.01
20	3.01	4.40	3.17	7.25	4.11	7.24	2.76	5.75	2.42	1.71	1.86	1.95
21	3.22	4.12	3.28	6.22	3.92	7.73	2.83	4.25	2.32	1.71	1.83	1.93
22	3.15	3.78	3.31	6.27	4.10	7.16	2.82	3.67	2.25	2.38	1.80	1.91
23	3.03	3.58	3.30	6.85	4.32	6.11	2.80	3.36	2.20	2.75	1.77	1.86
24	3.62	3.31	3.29	6.62	4.28	5.36	2.83	3.20	2.20	2.70	1.77	1.82
25	5.36	3.38	3.25	5.85	4.96	4.81	2.84	3.46	2.22	2.40	1.77	1.76
26	4.75	3.26	2.95	5.37	4.84	4.15	3.25	3.86	2.23	2.14	1.74	1.73
27	4.32	3.17	2.72	4.47	4.54	3.38	3.93	3.82	2.02	2.06	1.72	1.71
28	3.82	3.14	3.14	4.12	4.19	3.41	3.87	3.59	2.01	2.00	1.70	1.69
29	3.70	3.09	3.05	4.94	-----	3.28	3.50	3.56	1.97	1.86	1.69	1.72
30	3.62	3.45	2.92	4.62	-----	3.36	3.10	3.52	1.92	2.00	1.69	1.69
31	3.92	-----	2.81	4.35	-----	3.30	-----	3.39	-----	2.28	1.72	-----

NOTE—Stage-discharge relation Dec. 5-8, 11-13, 17-25, Dec. 28 to Jan. 19 and Jan. 28-30 affected by ice. Gage height June 13-18 unsatisfactory.

Daily discharge, in second-feet, of Mahoning Creek near Dayton for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	608	1,490	858	160	1,250	1,340	937	548	673	71	319	35
2	608	1,390	819	150	1,110	978	1,590	744	638	55	319	33
3	673	1,200	780	140	1,110	858	2,570	780	518	43	244	28
4	780	1,110	638	130	1,020	744	2,220	898	819	55	157	25
5	744	978	480	130	1,490	708	2,110	780	2,570	57	121	23
6	819	858	400	130	2,000	1,490	2,220	708	2,220	62	94	19
7	744	708	340	120	1,590	3,370	2,000	638	1,790	121	91	28
8	608	638	440	110	1,490	4,840	1,590	608	1,160	94	105	33
9	518	578	708	110	1,390	4,840	1,060	578	819	76	102	26
10	459	744	673	100	1,250	3,940	858	608	673	66	94	83
11	430	673	500	100	1,020	3,370	780	578	518	62	89	73
12	400	518	480	100	819	2,690	708	548	430	57	81	66
13	400	430	500	100	898	2,000	638	488	440	55	71	71
14	372	372	819	100	3,230	1,690	638	459	400	50	91	71
15	344	344	858	100	2,950	1,250	608	488	440	50	86	68
16	319	1,160	780	100	2,600	978	578	548	380	62	81	64
17	319	1,590	460	100	2,450	858	548	638	340	55	71	59
18	344	1,390	300	1,200	2,000	1,340	548	937	300	43	73	94
19	430	2,220	260	6,500	1,790	3,230	459	3,230	254	27	66	102
20	578	1,790	300	5,610	1,490	5,610	430	3,510	254	37	64	86
21	708	1,490	460	4,090	1,300	6,380	488	1,590	209	37	57	81
22	673	1,200	500	4,240	1,490	5,610	459	1,060	180	235	50	76
23	608	1,020	460	4,990	1,690	3,940	459	819	160	430	46	64
24	1,020	780	320	4,690	1,690	2,950	488	708	160	400	46	55
25	2,950	858	380	3,510	2,450	2,220	488	898	168	244	46	44
26	2,220	744	548	2,950	2,220	1,590	744	1,250	172	140	42	40
27	1,690	673	400	1,890	1,890	858	1,340	1,200	105	116	39	37
28	1,200	673	300	700	1,590	858	1,250	1,020	102	99	36	35
29	1,110	638	240	700	-----	780	937	978	91	64	35	39
30	1,020	898	200	1,400	-----	819	638	937	78	99	35	35
31	1,300	-----	180	1,790	-----	780	-----	858	-----	192	39	-----

NOTE—Discharge estimated Dec. 5-8, 11-13, 17-25, Dec. 28 to Jan. 19 and Jan. 28-30, because of ice, from weather records, study of gage height graph and comparison with similar studies for Tionesta Creek at Nebraska, Oil Creek near Rouseville, Clarion River near Piney and Crooked Creek at Hileman's Farm, and June 13-18, because of unsatisfactory gage height record, from weather records and study of gage height graph.

Monthly discharge of Mahoning Creek near Dayton for the year ending Sept. 30, 1927.

(Drainage area 322 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,950	319	806	2.50	2.88
November	2,220	344	972	3.02	3.37
December	858	180	496	1.54	1.78
January	6,500	100	1,490	4.63	5.34
February	3,230	819	1,690	5.25	5.47
March	6,380	708	2,350	7.30	8.42
April	2,570	430	1,010	3.14	3.50
May	3,510	459	956	2.97	3.42
June	2,570	78	569	1.77	1.98
July	430	27	105	.326	.38
August	319	35	93.2	.289	.33
September	102	19	53.1	.165	.18
The Year	6,500	19	879	2.73	37.05

#### OHIO BASIN—STATION NO. 13

#### ALLEGHENY RIVER AT KITTANNING

*Location.*—At five-span steel highway bridge, Market Street, Kittanning, Armstrong County.

*Drainage Area.*—9,010 square miles.

*Records Available.*—August 18, 1904, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by H. E. Reitler and John F. Patton. Elevation of gage zero 764.45 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel. Control is at a riffle about 500 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 18.0 feet at 2 a. m. January 23 (discharge, 107,000 second-feet); minimum, 1.55 feet at 7 a. m. September 28 (discharge, 1,040 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent throughout the year.



Rating curve well defined between 800 and 250,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Allegheny River at Kittanning during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
60	June 14	S. A. Kowalehik	Feet 4.64	Sec.-ft. 8,020

Daily Mean Gage Height, in feet, of Allegheny River at Kittanning for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.05	10.30	10.52			8.31	7.10	7.77	7.84	3.12	3.92	2.22
2	6.82	10.12	10.45	4.52	10.79	7.68		7.07	7.04	2.90	4.80	2.08
3	6.45	9.25	9.32	4.45	9.85	7.01		6.80	6.56	2.72	4.95	2.02
4	6.72	9.35	8.05	4.47	9.39	6.68		6.57	6.59	2.45	4.00	1.98
5	6.70	8.90	7.60		9.19	6.46	7.76	7.13	9.06	2.27	3.58	1.88
6	8.75	8.15	6.95		9.07	6.64	9.96	7.25	8.34	2.08	3.38	1.74
7	10.78	7.62	6.30		8.75	7.44	11.16	7.13	7.32	2.27	2.95	1.70
8	9.78	7.00	6.22		8.32	10.68	10.28	6.57	6.44	2.42	2.88	1.72
9	8.95		7.15		13.07	9.25	5.93	5.84	2.84	2.92	1.76	
10	8.30	7.10	7.20		11.81	8.30	5.97	5.56	2.45	2.87	1.77	
11	7.92				6.47	10.69	7.47	6.17	5.26	2.40	2.80	2.28
12	8.98	8.22		3.82	6.27	9.99	7.10	6.03	5.06	2.30		2.42
13	8.15	7.60	6.35	4.25	6.02	10.38	7.10	5.87	4.32	2.38		2.40
14	7.38	7.20	7.95	4.45	6.37	11.26	6.27	5.65	4.53	2.28		2.40
15	6.65	6.80	9.33	4.55	8.82	13.64	5.85	5.75	4.55	1.92	2.47	2.38
16	6.32	10.40	8.50	4.37	9.45	13.06	5.47	6.13	4.48	2.42	2.38	2.10
17	5.97	15.30	7.55	4.25	9.45	11.87	5.65	8.23	3.98	2.42	2.20	1.95
18		14.85	6.72	4.02	10.30	10.75	5.57	8.73	3.85	2.30	2.20	1.91
19	6.75	14.52		5.10	10.65	5.65	9.75	3.80	2.47	2.52	2.35	
20	7.32	13.35		10.97	12.06	5.83	10.85	3.52	2.48	2.32	2.38	
21	7.42			14.77	8.61	15.44	5.67	9.37	3.78	2.50	2.15	2.15
22	7.18	11.00	6.15	16.37	7.48	16.98	5.70	8.50	3.80	2.48	2.23	1.95
23	7.52	9.70	6.30		7.64	15.06	6.13	7.85	3.52	3.40	2.50	1.78
24	7.60	8.85	6.40		9.64	13.03	6.15	11.24	3.38	4.30	2.50	1.71
25	10.80	8.58	6.15	11.87	10.90	11.26	5.67	13.96	3.32	3.95	2.77	1.65
26	14.80	8.30	5.68	10.55	11.48	9.98	5.73	15.29	3.22	3.78	2.63	1.62
27	14.20		5.32	9.47	10.84	9.31	6.65	14.46	3.25	3.82		1.59
28	12.35	9.05	4.82	9.22	9.28	8.84	8.87	12.56	3.51	3.65	2.19	1.72
29	11.02	8.62	4.90	8.95		8.41	9.45	10.94	3.75	3.08	2.05	1.86
30	10.28	9.95	4.55			7.91	8.70	9.74	3.55	3.22	1.98	1.72
31	10.28		4.72			7.64		8.79		3.22	2.28	

NOTE—Gage height Oct. 18, Nov. 9, 11, 21, 27, Dec. 11, 12, 19-21, Jan. 1, 5-11, 23, 24, Jan. 30 to Feb. 1, Feb. 9, 10, 19, 20, Apr. 2-4, Aug. 12-14 and 27 unsatisfactory.

Daily discharge, in second-feet, of Allegheny River at Kittanning for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19,000	40,700	42,200	7,500	50,000	27,100	19,600	23,900	23,900	3,720	5,580	1,929
2	17,800	39,300	41,400	7,260	44,300	23,300	20,000	19,600	19,000	3,270	8,380	1,760
3	15,800	33,000	33,700	6,960	37,200	19,000	24,000	17,800	16,800	2,850	9,200	1,600
4	17,300	34,400	25,200	7,260	34,400	17,300	22,000	16,800	16,800	2,350	5,840	1,600
5	17,300	31,000	22,600	7,000	33,000	16,200	23,900	19,600	32,400	2,000	4,850	1,460
6	30,400	26,400	19,000	6,500	32,400	16,800	38,600	20,200	27,100	1,760	4,390	1,230
7	44,300	22,600	15,300	6,500	30,400	21,400	47,100	19,600	20,800	2,000	3,490	1,220
8	37,200	19,000	14,800	6,000	27,100	43,600	40,700	16,800	15,800	2,260	3,270	1,220
9	31,700	18,000	20,200	6,000	22,000	61,600	33,000	13,300	12,800	3,060	3,270	1,280
10	27,100	19,600	20,200	5,500	18,000	51,500	27,100	13,800	11,900	2,350	3,270	1,280
11	24,500	24,000	18,000	5,500	16,200	43,600	22,000	14,800	10,500	2,260	3,060	2,080
12	31,700	26,400	14,000	5,340	15,300	38,600	19,600	13,800	9,640	2,800	2,800	2,260
13	26,400	22,600	15,800	6,380	13,800	41,400	19,600	13,300	6,660	2,260	2,600	2,260
14	21,400	20,200	25,200	6,960	15,800	47,900	15,300	11,900	7,260	2,080	2,600	2,260
15	16,800	17,800	33,700	7,600	30,400	65,700	12,800	12,800	7,600	1,460	2,350	2,260
16	15,300	41,400	28,400	6,960	34,400	61,600	11,400	14,300	7,260	2,260	2,260	1,760
17	13,800	80,600	22,600	6,380	34,400	52,300	11,900	26,400	5,840	2,260	1,920	1,530
18	14,000	76,200	17,300	5,840	40,700	44,300	11,900	29,700	5,340	2,080	2,080	1,460
19	17,800	73,500	12,000	9,640	46,000	42,900	11,900	37,200	5,340	2,350	2,440	2,160
20	20,800	64,000	11,000	45,700	40,000	53,800	12,800	44,300	4,620	2,440	2,080	2,260
21	21,400	55,000	13,000	76,200	29,000	81,500	12,400	34,400	5,340	2,440	1,840	1,840
22	20,200	45,700	14,800	90,800	22,000	96,600	12,400	28,400	5,340	2,440	2,000	1,530
23	22,000	36,500	15,300	95,000	22,600	78,800	14,300	23,900	4,620	4,390	2,440	1,340
24	22,600	30,400	15,800	65,000	35,800	60,800	14,800	47,100	4,390	6,660	2,440	1,220
25	44,300	29,000	14,800	52,300	45,000	47,900	12,400	69,100	4,160	5,840	3,060	1,160
26	76,200	27,100	12,400	42,900	49,300	38,600	12,400	80,600	3,940	5,340	2,640	1,100
27	70,800	30,000	10,500	35,100	44,300	33,700	16,800	73,500	3,940	5,340	2,400	1,100
28	56,100	31,700	8,380	33,000	33,700	30,400	31,000	57,600	4,620	4,850	1,920	1,220
29	45,700	29,000	8,780	31,700		27,800	34,400	45,000	5,340	3,720	1,680	1,400
30	40,700	38,600	7,600	36,000		24,500	29,700	36,500	4,850	3,940	1,600	1,220
31	40,700		7,980	48,000		22,600		30,400		3,940	2,080	

NOTE—Discharge Oct. 18, Nov. 9, 11, 21, 27, Dec. 11, 12, 19-21, Jan. 1, 5-11, 23, 24, Jan. 30 to Feb. 1, Feb. 9, 10, 19, 20, Apr. 2-4, Aug. 12-14 and 27 estimated, because of unsatisfactory gage height record, from weather records, study of gage height graph and discharge of Allegheny River at Franklin.

Monthly discharge of Allegheny River at Kittanning for the year ending Sept. 30, 1927.

(Drainage area 9,010 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	76,200	13,800	29,700	3.30	3.80
November	80,600	17,800	36,100	4.01	4.47
December	42,200	7,600	18,800	2.09	2.41
January	95,000	5,340	25,100	2.79	3.22
February	50,000	13,800	32,100	3.56	3.71
March	96,600	16,200	43,000	4.77	5.50
April	47,100	11,400	21,200	2.35	2.62
May	80,600	11,900	29,900	3.32	3.83
June	32,400	3,940	10,500	1.17	1.30
July	6,660	1,460	3,100	.344	.40
August	9,200	1,600	3,220	.357	.41
September	2,260	1,100	1,600	.178	.20
The Year	96,600	1,100	21,100	2.34	31.87



## OHIO BASIN—STATION NO. 14

## CROOKED CREEK AT HILEMAN'S FARM

*Location.*—At single-span steel highway bridge, about three and one-half miles south of Ford City, at Hileman's Farm, Armstrong County.

*Drainage Area.*—279 square miles.

*Records Available.*—October 16, 1909, to September 30, 1927.

• *Gage.*—Standard chain attached to upstream side of bridge; read by Miss Ola M. Beck.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Left bank is high and not subject to overflow; right is low and becomes inundated at a stage of about 8 feet. Bed is composed of gravel and rock. Control is at a riffle about 300 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum open-water stage during the year, 8.75 feet observed at 8 a. m. March 21 (discharge, 8,100 second-feet); a stage of 10.6 feet, estimated from hydrograph, was reached at 10 p. m. January 19, but the water was held back by an ice jam; minimum, 0.79 foot at 8 a. m. July 5 (discharge, 4.9 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 500 second-feet and fairly well defined between 500 and 5,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of Crooked Creek at Hileman's Farm during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
36	June 15	S. A. Kowalchik	2.08	182

*Daily Mean Gage Height, in feet, of Crooked Creek at Hileman's Farm for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.76	4.05	3.10	2.66	3.20	3.22	2.53	2.80	1.98	0.95	7.13	1.26
2	3.25	3.83	2.90	2.60	3.02	2.97	4.53	2.51	1.92	.95	4.95	1.12
3	3.45	3.15	2.68	2.61	2.85	2.75	5.09	2.37	1.79	.93	3.75	.99
4	3.21	2.89	2.51	2.53	3.05	2.56	4.63	2.46	2.19	.84	2.88	.97
5	3.02	2.76	2.51	2.75	3.71	2.49	4.03	2.82	2.93	.79	2.42	1.13
6	3.05	2.55	3.47	2.58	3.97	2.83	3.70	2.57	2.61	.83	2.28	.97
7	2.75	2.35	4.05	3.85	3.96	3.15	3.27	2.38	2.36	1.62	2.16	.87
8	2.53	2.18	4.23	4.13	4.20	5.07	3.09	2.25	2.18	1.51	2.28	1.16
9	2.37	2.23	4.77	3.99	3.74	4.63	2.89	2.20	2.05	1.26	2.93	1.39
10	2.25	2.20	4.55	3.67	3.10	3.65	2.71	2.13	1.91	1.11	2.84	1.29
11	2.13	2.11	3.81	3.42	2.81	3.25	2.43	2.14	1.76	1.04	2.15	1.59
12	2.03	1.99	2.90	3.23	2.66	2.92	2.34	2.06	1.69	.94	1.90	1.61
13	1.94	1.91	-----	3.12	2.60	2.75	2.27	1.93	1.81	.83	1.75	1.85
14	1.87	1.95	5.95	3.29	3.88	2.98	2.18	2.09	1.89	.79	1.92	1.78
15	1.79	1.89	4.60	4.63	3.01	2.08	2.31	2.31	1.98	.90	2.75	1.38
16	1.68	3.50	3.60	2.74	4.35	2.89	1.83	2.37	1.81	1.01	2.48	1.26
17	1.86	4.60	3.91	2.81	3.77	2.75	1.90	2.61	1.58	1.18	2.12	1.18
18	2.05	4.60	4.23	2.75	3.73	2.80	1.92	2.85	1.45	1.19	2.12	1.49
19	2.63	4.60	4.45	6.45	3.55	3.50	1.88	6.48	1.41	1.23	2.11	1.89
20	2.52	4.15	4.83	7.21	3.73	5.70	2.10	5.80	1.66	1.10	2.09	1.66
21	2.46	2.95	4.63	6.95	3.45	8.27	2.00	4.00	1.60	1.02	1.93	1.77
22	2.38	-----	4.33	7.90	3.19	5.87	2.69	3.30	1.44	2.37	1.76	1.70
23	2.30	2.05	4.05	8.09	3.97	4.13	2.62	3.03	1.41	2.87	1.65	1.28
24	2.36	2.45	4.65	5.55	4.93	3.53	2.69	3.07	1.37	2.11	1.59	1.23
25	4.95	2.54	4.47	3.93	5.23	3.16	2.27	3.28	1.30	1.86	1.40	1.16
26	4.77	2.45	4.05	3.31	5.42	2.95	2.21	3.04	1.39	1.62	1.38	1.07
27	3.83	-----	3.71	2.58	4.49	2.90	2.65	2.77	1.36	1.41	1.32	.97
28	3.28	-----	3.10	2.92	3.63	2.79	3.92	2.53	1.25	1.33	1.24	.97
29	2.96	2.35	2.67	5.31	-----	2.65	3.47	2.40	1.14	1.57	1.26	.93
30	3.03	2.95	2.64	4.23	-----	2.75	3.11	2.31	1.05	3.15	1.29	.89
31	3.43	-----	2.44	3.70	-----	2.67	-----	2.07	-----	5.52	1.29	-----

NOTE—Gage height Nov. 22, 27 and 28 unsatisfactory. Stage-discharge relation Dec. 5 to Jan. 20 affected by ice.

*Daily discharge, in second-feet, of Crooked Creek at Hileman's Farm for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	540	1,520	780	240	850	850	420	570	144	9.2	5,250	24
2	890	1,340	640	220	710	675	1,900	390	126	9.2	2,510	16
3	1,050	815	510	200	605	540	2,620	314	93	8.5	1,340	11
4	850	640	390	180	745	420	2,090	366	221	6.0	640	9.9
5	710	540	260	170	1,250	384	1,520	570	675	4.9	342	16
6	745	420	170	150	1,520	605	1,250	420	450	5.8	265	9.9
7	540	302	170	140	1,520	815	890	319	308	62	209	6.8
8	420	217	260	120	1,700	2,620	780	250	217	47	265	18
9	314	240	300	120	1,250	2,090	640	225	168	24	675	34
10	250	225	280	110	780	1,170	510	197	123	16	605	26
11	197	189	220	110	570	890	348	201	87	13	205	58
12	160	147	220	110	480	640	297	171	73	8.8	120	61
13	132	123	440	100	450	540	260	129	98	5.8	85	108
14	112	135	1,000	95	1,430	710	217	182	118	4.9	126	91
15	93	118	650	95	2,090	710	178	280	144	7.6	540	33
16	72	1,090	220	95	1,890	640	102	314	98	11	378	24
17	110	2,090	180	95	1,340	540	120	450	56	19	193	19
18	168	2,090	180	110	1,250	570	126	605	40	20	193	45
19	480	2,090	220	280	1,170	1,090	115	4,370	36	22	189	118
20	390	1,700	300	1,700	1,250	3,310	185	3,430	69	15	182	69
21	366	675	360	5,100	1,050	7,210	150	1,520	59	12	129	89
22	319	150	340	6,530	850	3,560	510	930	39	314	87	75
23	275	170	240	6,870	1,520	1,610	450	745	36	605	67	26
24	308	360	220	3,190	2,400	1,090	510	745	33	189	58	22
25	2,510	420	280	1,430	2,730	815	260	930	27	110	35	18
26	2,290	360	500	930	2,950	675	230	745	34	62	33	14
27	1,340	200	480	450	1,990	640	480	540	32	36	29	9.9
28	930	180	400	640	1,170	570	1,430	420	24	29	23	9.9
29	675	302	340	2,840	-----	480	1,050	330	17	55	24	8.5
30	745	135	300	1,700	-----	540	780	280	13	815	26	7.3
31	1,050	-----	280	1,250	-----	480	-----	174	-----	3,070	26	-----

NOTE—Discharge estimated Nov. 22, 27 and 28, because of unsatisfactory gage height record, from weather records and study of gage height graph, and Dec. 5 to Jan. 20, because of ice, from weather records, study of gage height graph and comparison with similar studies for Blacklick Creek at Blacklick, Loyalhanna Creek at New Alexandria and West Branch Susquehanna River at Bower.



Monthly discharge of Crooked Creek at Hileman's Farm for the year ending Sept. 30, 1927.

(Drainage area 279 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,510	72	614	2.20	2.54
November	2,090	118	633	2.27	2.53
December	1,000	170	359	1.29	1.49
January	6,870	95	1,140	4.09	4.72
February	2,950	450	1,340	4.80	5.00
March	7,210	384	1,210	4.34	5.00
April	2,620	102	684	2.45	2.73
May	4,370	129	681	2.44	2.81
June	675	13	122	.437	.49
July	3,070	4.9	181	.649	.75
August	5,250	23	479	1.72	1.98
September	118	6.8	35.9	.129	.14
The Year	7,210	4.9	620	2.22	30.18

OHIO BASIN—STATION NO. 15

### STONY CREEK AT JOHNSTOWN

*Location.*—At single-span steel highway bridge. Poplar Street, Johnstown, Cambria County, about one and one-half miles above the confluence of Stony Creek and the Little Conemaugh River.

*Drainage Area.*—468 square miles.

*Records Available.*—July 2, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Edmund F. Miller. Elevation of gage zero 1,154.0 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Banks are high and not subject to overflow. Control for low water is at a riffle, where the bed is composed of gravel and small boulders, about 100 feet downstream from the gage; practically permanent. Control for high stages is at a riffle, where the bed is composed of gravel and large boulders, about 1,300 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 10.96 feet observed at 4.30 p. m. January 22 (discharge, 11,700 second-feet); minimum, 1.11 feet at 7.15 a. m. September 30 (discharge 54 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice for short periods.

*Diversions.*—A dam one mile upstream from the mouth of Quemahoning Creek creates a reservoir having a capacity of 1,740,000,000 cubic feet, from which water is carried through a conduit to the Cambria Plant of the Bethlehem Steel Company at Johnstown, and returned to the stream below the gaging station.

*Accuracy.*—Stage-discharge relation probably permanent except when affected by ice. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Cooperation.*—A record of the quantity of water diverted from the Quemahoning Reservoir is furnished by the Bethlehem Steel Company, Johnstown, Pennsylvania.

Discharge measurements of Stony Creek at Johnstown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
52	June 18	S. A. Kowalehik	Feet 2.68	Sec.-ft. 505

Daily Mean Gage Height, in feet, of Stony Creek at Johnstown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.89	3.18	2.74	2.44	3.62	3.84	3.80	3.63	2.38	1.82	5.57	1.56
2	1.81	2.98	2.45	2.26	3.28	3.56	4.92	3.46	2.21	1.75	4.38	1.50
3	1.83	2.72	2.34	2.21	3.44	3.18	5.59	3.39	2.32	1.74	3.31	1.44
4	1.78	2.66	2.12	2.22	4.06	2.95	5.09	3.42	5.27	1.70	2.69	1.43
5	1.69	2.58	1.97	2.22	3.86	2.81	4.62	3.48	7.94	1.70	2.32	1.33
6	1.72	2.36	2.04	1.98	5.58	3.64	4.56	3.21	5.77	1.52	2.11	1.32
7	1.70	2.26	2.04	1.94	5.98	5.67	4.68	2.99	4.56	2.90	2.11	1.29
8	1.62	2.15	2.33	1.91	4.88	7.97	4.40	2.73	3.81	4.14	2.82	1.38
9	1.56	2.30	2.52	1.86	4.16	7.65	4.12	2.88	3.37	3.50	3.70	1.45
10	1.50	2.66	2.46	1.92	3.78	5.57	3.93	2.79	3.10	2.41	3.02	1.38
11	1.50	2.87	2.68	1.97	3.50	4.74	3.90	2.78	2.87	2.10	2.35	2.13
12	1.52	2.62	2.51	1.92	3.20	4.84	3.62	2.61	2.77	2.05	2.14	1.81
13	1.89	2.53	2.95	1.98	3.05	4.66	3.47	2.46	2.52	1.98	1.94	1.59
14	2.14	2.50	4.50	3.24	4.42	5.01	3.34	2.53	4.72	1.91	2.01	1.62
15	1.82	2.40	3.94	3.26	6.00	4.88	2.92	2.63	5.29	1.74	2.63	1.45
16	1.69	4.76	3.05	3.28	5.35	3.73	2.86	2.97	3.70	1.70	2.11	1.35
17	1.88	6.05	2.72	3.20	4.57	3.60	2.86	3.93	2.63	1.88	1.91	1.24
18	2.58	5.30	2.35	2.91	5.00	3.48	2.68	5.08	2.70	2.22	2.24	1.80
19	3.08	4.94	2.06	4.80	4.56	4.12	2.57	5.23	3.58	1.84	2.11	1.81
20	2.84	4.10	2.28	7.00	4.22	5.90	2.58	4.54	3.50	1.65	3.85	1.44
21	3.26	3.62	2.76	9.10	4.04	7.45	2.64	3.82	3.14	1.59	3.80	1.31
22	2.78	3.38	2.79	10.40	3.86	6.70	3.55	3.53	2.85	2.57	3.23	1.28
23	2.48	3.17	2.52	9.55	4.38	5.32	3.42	3.40	2.70	4.04	2.59	1.22
24	2.78	3.01	2.44	6.95	5.37	4.74	3.00	3.15	2.50	2.97	2.19	1.24
25	3.86	2.89	-----	5.57	5.66	4.21	2.84	2.95	2.40	2.33	2.02	1.36
26	3.72	2.76	-----	4.42	5.64	3.82	2.76	2.88	2.51	2.03	1.62	1.22
27	3.47	2.90	-----	3.28	5.12	3.68	3.21	3.27	2.34	1.85	1.73	1.19
28	3.30	2.74	3.10	3.54	4.34	3.46	3.46	2.83	2.11	1.77	1.69	1.16
29	3.10	2.50	2.98	4.08	-----	3.24	3.66	2.55	1.96	1.67	1.66	1.13
30	3.32	2.70	2.70	4.20	-----	3.10	4.40	2.53	1.88	1.65	1.68	1.11
31	3.29	-----	2.50	4.08	-----	2.90	-----	2.54	-----	2.96	1.62	-----

NOTE—Gage height Dec. 25-27 not observed. Stage-discharge relation Jan. 10, 11 and 14-18 affected by ice.



Daily discharge, in second-feet, of Stony Creek at Johnstown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	261	940	672	510	1,210	1,350	1,350	1,210	485	233	2,920	148
2	229	815	510	412	1,000	1,210	2,230	1,140	390	208	1,820	130
3	237	645	460	390	1,070	940	2,920	1,070	435	204	1,000	115
4	218	618	345	390	1,580	785	2,420	1,070	2,610	190	645	112
5	187	590	293	390	1,420	700	1,980	1,140	5,910	190	435	91
6	197	460	325	297	2,920	1,210	1,980	940	3,140	136	345	89
7	190	412	325	281	3,370	3,030	2,060	815	1,980	755	345	83
8	166	368	460	269	2,230	6,060	1,820	672	1,350	1,580	700	101
9	148	435	535	249	1,660	5,480	1,580	755	1,070	1,140	1,230	118
10	130	618	510	240	1,350	2,920	1,420	700	875	485	815	101
11	130	728	645	240	1,140	2,060	1,420	700	728	345	460	368
12	136	590	535	273	940	2,140	1,210	590	672	325	368	229
13	261	562	785	297	875	2,060	1,140	510	535	297	231	157
14	368	535	1,900	320	1,820	2,320	1,000	562	2,060	269	305	166
15	223	485	1,420	360	3,370	2,230	755	618	2,610	204	618	118
16	187	2,140	815	440	2,710	1,230	728	785	1,280	190	345	95
17	257	3,370	645	500	1,980	1,140	728	1,420	618	257	269	74
18	590	2,610	460	650	2,320	1,140	645	2,420	645	390	412	225
19	875	2,230	325	2,140	1,980	1,580	562	2,510	1,210	241	345	229
20	728	1,580	435	4,640	1,660	3,260	590	1,900	1,140	175	1,350	115
21	1,000	1,210	672	7,900	1,500	5,200	618	1,350	875	157	1,350	87
22	700	1,070	700	10,400	1,420	4,230	1,210	1,140	728	562	940	81
23	535	940	535	8,820	1,820	2,610	1,070	1,070	645	1,500	590	71
24	700	815	510	4,640	2,710	2,060	815	940	535	785	390	74
25	1,420	755	550	2,920	3,030	1,660	728	785	485	460	305	97
26	1,280	672	950	1,820	2,920	1,350	672	755	535	325	166	71
27	1,140	755	1,100	1,000	2,420	1,280	940	1,000	460	245	200	66
28	1,000	672	875	1,140	1,740	1,140	1,140	728	345	214	187	61
29	875	535	815	1,580	-----	940	1,280	562	289	181	178	56
30	1,000	645	645	1,660	-----	875	1,820	562	257	175	184	54
31	1,000	-----	535	1,580	-----	755	-----	562	-----	785	166	-----

NOTE—Discharge does not include the water diverted from Quemahoning Reservoir. Discharge estimated Dec. 25-27, because of no gage height record, from weather records, study of gage height graph and comparison with gage height record for U. S. Weather Bureau station at Johnstown, and Jan. 10, 11 and Jan. 14-18, because of ice, from weather records, study of gage height graph and comparison with similar studies for Loyalhanna Creek at New Alexandria and Laurel Hill Creek at Ursina.

Monthly discharge of Stony Creek at Johnstown for the year ending Sept. 30, 1927.  
(Drainage area 468 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,420	130	528	1.38	1.59
November	3,370	368	960	2.29	2.56
December	1,900	293	654	1.66	1.91
January	10,400	240	1,830	4.19	4.83
February	3,370	875	1,930	4.38	4.56
March	6,060	700	2,100	4.76	5.49
April	2,920	562	1,290	3.06	3.41
May	2,510	510	999	2.41	2.78
June	5,910	257	1,160	2.75	3.07
July	1,580	136	426	1.15	1.33
August	2,920	166	636	1.62	1.87
September	368	54	119	.521	.58
The Year	10,400	54	1,050	2.50	33.98

NOTE—Discharge does not include the water diverted from the Quemahoning Reservoir. Run-off includes the quantity of water diverted.

OHIO BASIN—STATION NO. 16

## BLACKLICK CREEK AT BLACKLICK

*Location.*—At three-span steel highway bridge on road to Gratton, about one-quarter of a mile north of the Pennsylvania Railroad Station, Blacklick. Indiana County.

*Drainage Area.*—386 square miles.

*Records Available.*—August 16, 1904, to December 31, 1905, and January 8, 1907, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Miss Carrie Kelly.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Right bank is high and not subject to inundation; left begins to overflow at a stage of about 12.0 feet. Bed is composed of sand, gravel and boulders. Control is at a rifle about 200 feet downstream from the gage; may shift occasionally.

*Extremes of Discharge.*—Maximum stage during the year, 9.40 feet observed at 6 p. m. January 22 (discharge, 10,700 second-feet); minimum, 2.24 feet on July 21 (discharge, 50 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 10,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Blacklick Creek at Blacklick during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
46	June 17	S. A. Kowalchik	Feet 2.82	Sec. ft. 240



Daily Mean Gage Height, in feet, of Blacklick Creek at Blacklick for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.50	4.40	3.31	3.26	4.15	4.10	4.10	3.60	3.05	2.35	5.10	2.50
2	3.80	4.10	3.20	3.06	3.95	4.00	5.78	3.45	3.00	2.37	4.60	2.48
3	4.00	4.00	3.11	3.13	3.90	3.70	5.70	3.27	2.85	2.42	3.75	2.44
4	3.45	3.75	3.14	3.18	4.00	3.45	5.20	3.39	3.85	2.36	3.35	2.43
5	3.28	3.60	3.00	3.32	4.00	3.45	4.40	3.45	5.22	2.32	3.15	2.40
6	4.40	3.32	2.71	3.00	4.25	3.95	4.45	3.21	4.50	2.34	3.00	2.36
7	3.95	3.10	3.26	2.97	4.55	5.42	4.20	3.10	4.00	3.19	2.90	2.33
8	3.80	3.12	3.34	2.90	4.15	6.97	3.95	3.00	3.65	2.92	3.02	3.20
9	3.50	3.15	3.60	2.90	3.95	5.75	3.80	3.13	3.50	2.55	4.17	2.87
10	3.45	3.60	3.55	3.02	3.85	4.90	3.60	2.96	3.24	2.45	3.41	2.50
11	3.30	3.18	3.45	2.95	3.70	4.45	3.50	2.98	3.12	2.39	3.10	2.93
12	3.22	3.00	3.31	2.94	3.50	4.25	3.35	2.90	3.01	2.41	2.89	2.95
13	3.10	3.06	4.35	2.89	3.40	4.00	3.30	2.88	2.90	2.37	2.80	2.61
14	3.12	2.95	5.30	3.05	4.48	4.50	3.30	2.87	3.29	2.33	3.00	2.68
15	3.00	2.92	4.60	3.20	5.10	4.25	3.14	3.30	3.40	2.32	3.35	2.53
16	2.90	3.88	4.15	3.30	4.50	3.95	3.10	3.45	3.02	2.33	3.17	2.44
17	3.22	4.50	3.55	3.30	4.60	3.80	3.10	3.85	2.82	2.33	2.93	2.42
18	3.75	4.20	3.18	3.60	4.45	3.70	3.04	4.35	2.73	2.39	3.11	3.10
19	4.50	4.90	2.99	5.20	4.40	3.90	3.09	6.95	2.91	2.34	3.15	3.51
20	3.70	4.30	3.17	7.80	4.30	5.95	3.13	6.03	3.03	2.29	3.81	2.70
21	3.85	3.95	3.50	7.80	4.15	8.50	3.01	4.75	2.86	2.24	-----	2.55
22	3.60	3.75	3.40	8.77	3.90	6.35	3.50	4.15	2.71	2.85	-----	2.58
23	3.50	3.60	3.17	8.00	4.75	5.20	3.29	4.05	2.72	3.40	-----	2.52
24	3.98	3.45	3.22	6.10	5.60	4.60	3.14	4.05	2.69	2.79	3.00	2.44
25	5.51	3.40	3.28	5.00	5.85	4.25	3.07	3.85	2.70	2.55	2.90	2.40
26	4.90	3.25	4.32	4.35	5.40	4.00	2.98	3.70	2.80	2.43	2.78	2.44
27	4.40	3.27	3.85	3.65	4.90	4.30	4.25	3.85	2.78	2.36	2.64	2.38
28	4.00	3.07	3.80	4.20	4.45	4.15	4.70	3.60	2.53	2.34	2.61	2.42
29	3.90	3.11	3.70	5.05	-----	4.00	4.10	3.35	2.52	2.92	2.62	2.36
30	3.50	3.32	5.00	-----	-----	3.85	3.85	3.36	2.43	3.60	2.60	2.36
31	-----	-----	3.35	4.65	-----	4.00	-----	3.19	-----	5.00	2.57	-----

NOTE—Gage height Oct. 30, 31 and Aug. 21-23 unsatisfactory. Stage-discharge relation Dec. 4-24 and Dec. 26 to Jan. 18 affected by ice.

Daily discharge, in second-feet, of Blacklick Creek at Blacklick for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	625	1,330	500	360	1,160	1,070	1,070	690	365	77	2,090	125
2	835	1,070	445	320	950	990	3,160	592	340	82	1,520	118
3	990	990	390	300	910	760	3,000	472	268	97	798	104
4	592	798	300	240	990	592	2,230	560	872	79	530	100
5	500	690	200	220	990	592	1,730	592	2,230	68	418	90
6	1,330	500	180	200	1,160	950	1,330	445	1,420	74	340	79
7	950	390	240	180	1,520	2,520	1,160	390	990	445	290	71
8	835	390	400	160	1,160	5,480	950	340	725	300	340	445
9	625	418	420	160	950	3,160	835	418	625	142	1,160	276
10	592	690	400	150	872	1,840	690	320	472	108	560	125
11	500	445	400	140	760	1,330	625	330	390	87	390	305
12	445	340	420	150	625	1,160	530	290	340	94	286	315
13	390	365	850	160	560	990	500	281	290	82	245	164
14	390	315	1,400	180	1,420	1,420	500	276	500	71	340	192
15	340	300	1,200	200	2,090	1,160	418	500	560	68	530	136
16	290	910	650	260	1,420	950	390	592	340	71	418	104
17	445	1,420	400	340	1,520	835	390	872	254	71	305	97
18	798	1,160	260	500	1,330	760	365	1,330	214	87	390	390
19	1,420	1,840	240	2,230	1,330	910	390	5,480	295	74	418	625
20	760	1,240	300	7,160	1,240	3,510	418	3,510	365	61	835	200
21	872	950	420	7,160	1,160	8,660	340	1,730	272	50	550	142
22	690	798	400	9,320	910	4,260	625	1,160	204	268	550	153
23	625	690	340	7,580	1,730	2,230	500	1,030	209	560	380	132
24	990	592	360	3,690	2,840	1,520	418	1,030	196	240	340	104
25	2,680	560	500	1,960	3,160	1,160	365	872	200	142	290	90
26	1,840	472	750	1,330	2,520	990	330	760	245	100	236	104
27	1,330	472	750	725	1,840	1,240	1,160	872	236	79	176	85
28	990	365	650	1,160	1,330	1,160	1,620	690	136	74	164	97
29	910	390	550	1,960	-----	990	1,070	530	132	300	168	79
30	1,200	625	480	1,960	-----	872	872	530	100	690	160	79
31	1,300	-----	440	1,520	-----	990	-----	445	-----	1,960	150	-----

NOTE—Discharge estimated Oct. 30, 31 and Aug. 21-23, because of unsatisfactory gage height record, from weather records, study of gage height graph and discharge at other stations, and Dec. 4-24 and Dec. 26 to Jan. 18, because of ice, from weather records, study of gage height graph and comparison with similar studies for Stony Creek at Johnstown, Loyalhanna Creek at New Alexandria and West Branch Susquehanna River at Bower.

Monthly discharge of Blacklick Creek at Blacklick for the year ending Sept. 30, 1927.

(Drainage area 386 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,680	290	874	2.26	2.61
November	1,840	300	717	1.86	2.08
December	1,400	180	491	1.27	1.46
January	9,320	140	1,680	4.35	5.02
February	3,160	560	1,370	3.55	3.70
March	8,660	592	1,780	4.61	5.32
April	3,160	330	933	2.42	2.70
May	5,480	276	901	2.33	2.69
June	2,230	100	460	1.19	1.33
July	560	50	216	.559	.65
August	2,090	150	496	1.28	1.48
September	625	71	171	.443	.49
The Year	8,660	50	839	2.17	29.53

#### OHIO BASIN—STATION NO. 17

#### LOYALHANNA CREEK AT NEW ALEXANDRIA

*Location.*—At three-span concrete highway bridge, built on site of the old single-span wooden covered highway bridge, New Alexandria, Westmoreland County.

*Drainage Area.*—264 square miles.

*Records Available.*—August 17, 1913, to August 31, 1918, August 7, 1919, to July 16, 1923, and November 20, 1925, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by E. E. Huffman. Elevation of gage zero 917.26 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and do not overflow. Bed is composed of gravel and boulders. Control for low stages is at a gravel riffle about 50 feet downstream from gage; practically permanent. Medium and high stage control is at a riffle about 1,300 feet downstream from gage, composed of gravel and boulders; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year 8.95 feet observed at 8 a. m. January 21 (discharge, 5,880 second-feet); minimum, 1.74 feet at 6 p. m. September 30 (discharge, 46 second-feet).



*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 4,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying mean gage height to rating table. Results good.

*Discharge measurements of Loyalhanna Creek at New Alexandria during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
25	June 20	S. A. Kowalchik	2.70	280

*Daily Mean Gage Height, in feet, of Loyalhanna Creek at New Alexandria for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.29	4.47	2.64	3.31	3.55	3.70	3.50	3.20	2.44	2.07	4.22	2.10
2	2.43	3.71	2.52	3.10	3.43	3.38	4.15	3.13	2.37	2.10	3.48	2.07
3	2.25	3.54	2.55	2.94	3.32	2.97	5.00	2.98	2.32	2.07	2.87	2.04
4	2.17	3.46	2.56	3.16	3.77	2.87	4.55	3.07	4.60	2.03	2.74	2.00
5	2.58	2.99	2.65	3.13	3.87	2.77	4.05	2.95	6.37	1.95	2.69	1.95
6	3.10	2.80	2.65	2.87	4.75	3.65	4.87	2.87	5.05	1.90	2.36	1.91
7	2.93	2.68	2.44	2.74	4.25	5.40	3.75	2.71	3.73	2.21	2.30	1.89
8	2.47	2.56	2.88	2.57	3.80	6.98	3.34	2.83	3.07	3.37	3.16	2.11
9	2.36	2.50	2.75	2.52	3.53	5.05	3.43	2.99	2.95	3.35	4.05	2.04
10	2.28	2.85	4.07	2.46	3.34	4.19	3.32	2.88	2.89	3.16	2.91	2.08
11	2.33	2.70	3.93	2.41	3.15	3.80	3.15	2.79	2.72	2.93	2.60	2.13
12	2.26	2.57	3.77	2.38	2.87	3.43	3.01	2.76	2.62	2.74	2.45	2.02
13	2.24	2.50	4.87	2.43	2.85	3.32	3.00	2.68	2.57	2.34	2.34	2.03
14	2.64	2.45	5.37	2.78	4.28	4.32	2.97	2.90	2.83	1.95	2.90	1.98
15	2.48	2.43	4.27	2.94	4.80	3.63	2.83	3.04	2.91	2.08	3.00	1.92
16	2.38	3.26	3.47	2.79	4.10	3.40	2.73	3.51	2.69	2.11	2.48	1.94
17	3.09	3.51	3.31	2.82	3.83	3.25	2.62	4.27	2.60	2.37	2.64	1.95
18	3.35	3.36	3.00	2.89	3.39	3.09	2.45	4.87	2.73	2.60	2.58	1.97
19	3.95	3.59	2.96	4.38	3.95	3.57	2.35	5.03	2.78	2.50	2.67	2.12
20	3.53	3.43	2.92	8.00	4.20	4.95	2.84	4.34	2.72	2.27	2.84	2.04
21	3.27	3.32	3.29	8.35	3.85	7.00	2.97	3.67	2.58	2.07	2.54	1.97
22	3.17	3.08	3.43	8.31	3.80	5.70	3.46	3.31	2.66	2.28	2.50	1.94
23	2.83	2.79	2.92	7.81	4.93	4.73	3.12	3.14	2.43	2.74	2.46	1.89
24	3.00	2.80	3.02	6.67	5.75	4.00	3.02	3.03	2.32	2.67	2.33	1.86
25	4.65	2.74	4.35	5.15	6.10	3.55	2.90	2.83	2.27	2.28	2.25	1.85
26	4.30	2.64	5.17	4.15	6.05	3.47	2.83	2.97	2.43	2.12	2.17	1.85
27	3.55	2.76	4.35	3.60	4.80	3.47	2.89	2.79	2.36	2.13	2.15	1.84
28	3.25	2.64	4.43	3.23	4.13	3.30	3.06	2.67	2.26	2.08	2.10	1.82
29	3.52	2.55	3.96	3.25	-----	3.13	3.09	2.62	2.14	2.08	2.23	1.79
30	3.51	2.64	3.59	4.23	-----	3.09	3.24	2.54	2.09	2.02	2.15	1.75
31	4.55	-----	3.36	3.80	-----	3.02	-----	2.52	-----	2.42	2.11	-----

NOTE—Stage-discharge relation Dec. 3 to Jan. 18 affected by ice.

*Daily discharge, in second-feet, of Loyalhanna Creek at New Alexandria for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	154	1,370	280	280	756	818	697	537	203	99	1,150	105
2	199	818	223	240	670	642	1,150	512	179	105	697	99
3	143	697	220	220	589	414	1,770	437	163	99	368	92
4	122	670	200	190	880	368	1,450	462	1,450	90	324	84
5	260	437	170	170	944	323	1,010	414	3,040	76	301	76
6	487	345	160	160	1,610	756	1,690	368	1,770	67	176	69
7	414	301	160	140	1,150	2,120	880	301	818	132	157	66
8	21	242	220	130	880	3,640	616	368	462	616	512	107
9	173	223	300	120	397	1,770	670	437	414	616	1,010	92
10	151	368	300	120	616	1,150	589	390	390	512	390	101
11	167	301	300	120	512	880	512	345	301	414	260	112
12	146	242	550	120	368	670	437	323	260	323	206	88
13	140	223	900	130	368	589	437	301	242	170	170	90
14	280	206	1,000	160	1,220	1,220	414	390	368	76	390	81
15	216	199	750	170	1,610	756	368	462	390	101	437	70
16	183	563	440	160	1,080	642	323	697	301	107	216	74
17	487	697	240	160	880	563	260	1,220	260	179	280	76
18	616	616	170	220	642	487	206	1,690	323	260	260	79
19	1,010	756	160	1,290	1,010	756	173	1,770	345	223	280	110
20	697	670	190	4,720	1,150	1,770	368	1,220	301	149	368	92
21	563	589	300	5,180	880	3,640	414	818	260	99	242	79
22	512	487	320	5,060	880	2,380	670	589	280	151	223	74
23	368	345	260	4,500	1,690	1,530	487	512	199	323	209	66
24	437	345	300	3,330	2,470	1,010	437	462	163	280	167	61
25	1,450	323	440	1,940	2,750	756	390	368	149	151	143	60
26	1,220	280	550	1,150	2,660	670	368	414	199	110	122	60
27	756	323	500	756	1,610	670	390	345	176	112	117	59
28	563	280	460	563	1,080	589	462	280	146	101	105	56
29	697	242	420	563	-----	512	487	260	115	101	137	52
30	697	280	360	1,150	-----	487	563	242	103	88	117	48
31	1,450	-----	320	880	-----	437	-----	223	-----	196	107	-----

NOTE—Discharge Dec. 3 to Jan. 18 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Stony Creek at Johnstown, Casselman River at Markleton and Laurel Hill Creek at Ursina.

*Monthly discharge of Loyalhanna Creek at New Alexandria for the year ending 1927.*

(Drainage area 264 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,450	140	483	1.83	2.11
November	1,370	199	448	1.70	1.90
December	1,000	160	360	1.36	1.57
January	5,180	120	1,100	4.17	4.81
February	2,750	368	1,130	4.28	4.46
March	3,640	323	1,060	4.02	4.64
April	1,770	173	623	2.36	2.63
May	1,770	223	553	2.09	2.41
June	3,040	103	459	1.74	1.94
July	616	67	198	.750	.86
August	1,150	105	311	1.18	1.36
September	112	48	79.3	.300	.34
The Year	5,180	48	565	2.14	29.03



## OHIO BASIN—STATION NO. 18

## KISKIMINITAS RIVER AT AVONMORE

*Location.*—At four-span steel highway bridge, Avonmore, Westmoreland County.

*Drainage Area.*—1,720 square miles.

*Records Available.*—May 29, 1907, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by J. H. Shupe. Elevation of gage zero 805.64 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge.

*Channel and Control.*—Right bank is high and not subject to overflow; left is low and overflows at high stages. Bed is composed of gravel. Control is at the first of a series of riffles about 300 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 21.3 feet at 11 p. m. January 22 (discharge, 41,300 second-feet); minimum, 3.14 feet at 4.45 p. m. September 30 (discharge, 540 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 30,000 second-feet. Gage read to hundredths twice daily; during high stages more frequently. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Discharge measurements of Kiskiminitas River at Avonmore during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
44	June 17	S. A. Kowalehik	5.15	2,140

*Daily Mean Gage Height, in feet, of Kiskiminitas River at Avonmore for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.79	8.39	5.49	5.82	7.69	7.93	6.76	7.31	4.93	3.60	10.11	3.55
2	4.62	7.62	5.29	5.29	6.85	7.31	9.98	6.61	4.65	3.52	8.75	3.45
3	5.06	6.84	4.86	5.16	6.55	6.78	11.87	6.13	4.45	3.55	6.95	3.38
4	4.62	6.24	4.89	5.14	-----	6.21	10.45	5.98	6.19	3.45	5.75	3.32
5	4.36	5.79	4.89	5.62	7.23	6.03	9.28	6.21	15.00	3.30	5.02	3.25
6	5.74	5.46	4.29	5.16	8.68	6.82	8.98	5.91	10.83	3.35	4.48	3.20
7	5.54	5.14	-----	4.76	10.15	10.04	8.43	5.41	8.61	4.80	4.40	3.20
8	5.04	4.86	5.14	4.32	8.73	13.75	7.88	5.13	7.40	6.63	4.50	3.62
9	4.59	4.74	6.44	5.57	7.78	13.53	7.35	5.51	6.48	5.35	6.74	3.75
10	4.32	5.74	6.59	6.72	7.13	10.52	7.28	5.33	5.83	4.20	6.20	3.52
11	4.16	5.86	6.49	8.69	6.65	8.88	6.85	5.28	5.45	3.82	5.02	-----
12	4.19	5.09	6.19	8.44	6.25	8.08	6.51	5.13	5.05	3.68	4.48	-----
13	4.02	4.84	7.39	8.36	5.91	7.68	6.21	4.93	4.78	3.65	4.15	3.82
14	4.49	4.76	10.09	8.49	6.95	7.85	6.18	4.83	4.98	3.50	4.22	3.70
15	4.44	4.66	9.09	8.69	11.09	8.68	5.78	5.48	7.16	3.48	5.65	3.55
16	4.09	6.12	7.36	7.94	9.38	7.53	5.45	5.93	5.98	3.48	5.05	3.42
17	3.99	10.12	7.06	7.76	8.81	6.61	5.55	7.13	5.14	3.52	4.25	3.30
18	4.94	8.34	10.49	7.89	8.58	6.65	5.38	8.21	4.72	4.05	4.12	3.40
19	7.49	9.74	9.71	11.66	9.11	7.16	5.15	12.46	4.70	4.28	4.62	5.62
20	6.74	8.74	10.49	16.61	8.61	11.75	5.23	11.38	5.88	3.62	4.82	4.97
21	6.34	7.59	11.78	18.09	8.11	15.80	5.08	8.98	5.30	3.45	6.25	4.08
22	6.04	6.84	13.06	18.89	7.58	14.33	5.68	7.63	4.85	3.58	5.80	3.68
23	5.52	6.29	9.41	18.14	8.59	11.23	6.55	6.88	4.60	5.85	5.12	3.52
24	5.44	5.94	5.81	14.54	11.53	9.23	5.81	6.83	4.48	6.00	4.65	3.42
25	8.94	5.64	7.04	11.16	12.98	8.08	5.45	6.35	4.28	4.78	4.28	3.35
26	9.36	5.42	10.12	9.94	12.83	7.41	5.38	6.15	4.28	4.25	3.98	3.27
27	7.94	5.44	8.36	8.24	10.63	7.75	5.77	6.35	4.38	3.82	3.80	3.24
28	6.94	5.39	7.34	6.94	9.06	7.25	7.97	5.91	4.08	3.60	3.65	3.18
29	6.36	4.94	7.19	8.34	-----	6.81	7.07	5.41	3.85	3.85	3.60	3.17
30	6.79	5.32	6.36	9.69	-----	6.48	6.73	5.21	3.70	4.22	3.65	3.16
31	7.44	-----	5.74	9.16	-----	6.65	-----	5.15	-----	6.08	3.60	-----

NOTE—Stage-discharge relation Dec. 4 to Jan. 19 affected by ice. Gage height Dec. 7, Feb. 4, Sept. 11 and 12 unsatisfactory.

*Daily discharge, in second-feet, of Kiskiminitas River at Avonmore for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,820	6,380	2,520	1,900	5,320	5,620	4,080	4,740	1,910	840	9,360	840
2	1,630	5,170	2,300	1,700	4,080	4,740	9,170	3,820	1,630	770	7,020	735
3	2,100	4,080	1,910	1,500	3,820	4,080	13,100	3,200	1,460	840	4,340	700
4	1,630	3,320	1,600	1,400	3,800	3,320	9,930	3,080	3,320	735	2,850	632
5	1,460	2,850	1,500	1,300	4,600	3,080	7,880	3,320	20,800	632	2,000	601
6	2,740	2,520	1,300	1,200	6,860	4,080	7,360	2,960	10,700	666	1,540	570
7	2,520	2,100	1,200	1,100	9,550	9,170	6,380	2,410	6,700	1,820	1,460	570
8	2,000	1,910	1,400	1,100	6,860	17,700	5,620	2,100	4,880	3,820	1,540	840
9	1,630	1,720	2,000	1,000	5,470	16,900	4,880	2,520	3,690	2,410	3,950	982
10	1,360	2,740	2,200	1,000	4,470	10,100	4,740	2,300	2,850	1,280	3,320	770
11	1,280	2,960	2,000	1,000	3,820	7,190	4,080	2,360	2,410	982	2,000	750
12	1,280	2,100	2,200	1,000	3,320	5,930	3,690	2,100	2,000	910	1,540	850
13	1,120	1,820	4,400	1,000	2,960	5,320	3,320	1,910	1,820	840	1,280	982
14	1,540	1,820	7,000	1,000	4,340	5,470	3,320	1,820	2,000	770	1,280	910
15	1,460	1,720	6,000	1,000	11,300	6,860	2,850	2,520	4,600	770	2,630	840
16	1,200	3,200	3,800	1,000	8,060	5,020	2,410	2,960	3,080	770	2,000	700
17	1,120	9,360	2,200	1,000	7,020	3,820	2,630	4,470	2,100	770	1,280	632
18	1,910	6,230	1,500	1,100	6,700	3,820	2,410	6,080	1,720	1,120	1,200	700
19	5,020	8,620	1,300	6,500	7,530	4,600	2,200	14,500	1,720	1,360	1,630	2,630
20	3,950	6,860	1,400	25,400	6,700	12,900	2,200	12,000	2,960	840	1,820	2,000
21	3,440	5,170	1,500	30,100	5,930	23,100	2,100	7,360	2,300	735	3,320	1,200
22	3,080	4,080	2,000	32,800	5,170	19,000	2,740	5,170	1,820	840	2,850	910
23	2,520	3,440	2,000	30,100	6,700	11,500	3,820	4,210	1,630	2,850	2,100	770
24	2,410	2,960	1,900	19,500	12,200	7,700	2,850	4,080	1,540	3,080	1,630	700
25	7,190	2,630	2,400	11,500	15,700	5,930	2,410	3,560	1,360	1,820	1,360	666
26	8,060	2,410	3,600	8,980	15,200	4,880	2,410	3,320	1,360	1,280	1,120	601
27	5,620	2,410	3,400	6,080	10,300	5,470	2,850	3,560	1,460	982	982	601
28	4,210	2,410	3,000	4,210	7,530	4,600	5,780	2,960	1,200	840	840	570
29	3,560	1,910	2,800	6,230	-----	4,080	4,470	2,410	982	982	840	540
30	4,080	2,300	2,400	8,620	-----	3,600	3,950	2,200	910	1,280	840	540
31	4,880	-----	2,200	7,700	-----	3,820	-----	2,200	-----	3,200	840	-----

NOTE—Discharge estimated Dec. 4 to Jan. 19 because of ice, from weather records, study of gage height graph and comparison with similar studies for Stony Creek at Johnstown, Blacklick Creek at Blacklick, Loyalhanna Creek at New Alexandria and gage height record of Kiskiminitas River at Vandergrift, and Feb. 4, Sept. 11 and 12, because of unsatisfactory gage height record, from weather records and study of gage height graph.



*Monthly discharge of Kiskiminitas River at Avonmore for the year ending Sept. 30, 1927.*

(Drainage area 1,720 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	8,060	1,120	2,830	1.65	1.90
November	9,360	1,720	3,570	2.08	2.32
December	7,000	1,200	2,480	1.44	1.66
January	32,800	1,000	7,070	4.11	4.74
February	15,700	2,960	6,980	4.06	4.23
March	23,100	3,080	7,530	4.38	5.05
April	13,100	2,100	4,520	2.63	2.93
May	14,500	1,820	3,940	2.29	2.64
June	20,800	910	3,230	1.88	2.10
July	3,820	632	1,320	.767	.88
August	9,360	840	2,280	1.33	1.53
September	2,630	540	844	.491	.55
The Year	32,800	540	3,870	2.25	30.53

OHIO BASIN—STATION NO. 19

KISKIMINITAS RIVER AT VANDERGRIFT

*Location.*—At pumping station of the American Sheet and Tin Plate Company, about 300 feet downstream from the Pennsylvania Railroad Station, Vandergrift, Westmoreland County.

*Drainage Area.*—1,830 square miles.

*Records Available.*—November 1, 1915, to September 30, 1927.

*Gage.*—A float type gage is installed at the pumping station. The float operates in a 3 inch pipe inserted in the pump house well, which is fed by gravity from the river. Gage heights are indicated on a vertical staff inside the pumping station; read to inches twice daily by pump house engineer; during high stages more frequently. Elevation of gage zero 767.14 feet, United States Geological Survey datum.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of gravel and rock.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 21.0 feet at 1 p. m. January 23; minimum, 3.50 feet at 5 p. m. September 30.

*Ice.*—Stage-discharge relation usually affected by ice.

*Cooperation.*—Record furnished by the American Sheet and Tin Plate Company, Vandergrift, Pennsylvania.

*Daily Mean Gage Height, in feet, of Kiskiminitas River at Vandergrift for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.70	8.50	6.00	6.17	8.29	8.38	7.20	7.71	5.54	4.54	10.05	4.58
2	5.50	8.21	6.00	6.17	7.50	7.75	9.95	7.54	5.50	4.50	9.62	4.54
3	5.75	7.42	5.50	5.83	7.12	7.21	11.85	7.08	5.46	4.50	8.00	4.42
4	5.30	7.00	5.08	5.75	7.00	6.75	10.88	6.75	5.77	4.42	6.84	4.33
5	5.20	6.38	5.08	5.92	7.30	6.33	9.62	6.67	14.12	4.25	6.25	4.33
6	5.72	6.25	5.00	6.00	8.25	6.72	9.20	6.54	11.42	4.12	5.79	4.17
7	6.30	5.92	5.00	5.96	9.87	9.33	8.75	6.29	9.00	5.55	5.50	4.00
8	5.80	5.50	5.25	5.83	9.16	12.69	8.50	6.08	8.08	6.68	5.46	4.21
9	5.54	5.54	6.79	5.67	8.20	13.87	8.17	6.04	7.29	6.50	7.02	4.67
10	5.42	5.66	7.04	5.50	7.62	10.79	7.96	6.08	6.57	5.58	7.29	4.58
11	5.12	6.62	7.08	5.42	7.16	9.34	7.75	6.04	6.33	4.96	6.25	5.08
12	5.04	6.04	6.58	5.21	6.84	8.75	7.46	5.92	6.12	4.83	5.66	5.25
13	4.88	5.58	7.85	5.08	6.50	8.38	7.25	5.67	5.84	4.67	5.42	5.12
14	4.83	5.71	10.08	5.34	6.33	8.33	6.92	5.62	5.80	4.62	5.17	4.83
15	5.08	5.42	9.60	5.58	10.44	9.08	6.92	5.75	7.85	4.42	5.92	4.75
16	5.00	6.42	8.05	5.84	9.80	8.00	6.46	6.17	7.00	4.25	6.34	4.50
17	4.83	10.54	7.42	6.16	9.17	7.58	6.42	7.08	6.46	4.25	5.62	4.42
18	5.30	9.00	6.27	6.50	8.54	7.29	6.17	8.15	5.83	4.62	5.34	4.33
19	7.58	9.72	5.71	8.02	9.17	7.40	6.17	12.07	5.75	5.30	5.46	6.36
20	7.12	9.21	5.54	15.12	8.83	11.58	6.00	12.02	6.08	4.75	5.96	6.21
21	6.80	8.21	6.17	17.44	8.38	15.08	6.00	9.58	6.25	4.42	6.62	5.32
22	6.75	7.50	6.46	18.21	8.12	14.88	6.08	8.54	6.08	4.42	6.79	4.92
23	6.25	6.96	6.42	18.26	8.60	11.50	6.92	7.58	5.71	5.84	6.29	4.71
24	6.00	6.54	6.21	15.04	11.04	9.67	6.54	7.21	5.54	7.16	5.84	4.38
25	8.40	6.34	6.60	11.71	12.34	8.54	6.30	7.12	5.38	6.08	5.50	4.42
26	9.90	6.12	10.13	9.84	12.80	7.80	6.00	6.96	5.33	5.38	5.21	4.38
27	8.29	6.17	9.12	8.83	11.04	7.70	6.18	6.71	5.17	5.00	4.96	4.25
28	7.45	6.17	7.88	7.92	9.42	7.58	7.96	6.71	5.17	4.71	4.83	4.17
29	7.17	5.80	7.54	8.17	-----	7.42	7.75	6.38	5.00	4.67	4.75	4.00
30	6.96	5.75	7.12	8.74	-----	7.25	7.42	6.04	4.62	5.17	4.67	3.66
31	7.50	-----	6.50	9.20	-----	7.17	-----	5.67	-----	5.82	4.58	-----

NOTE—Stage-discharge relation Dec. 7 to Jan. 20 affected by ice.

OHIO BASIN—STATION NO. 20

ALLEGHENY RIVER AT FREEPORT

*Location.*—At three-span steel highway bridge, Freeport, Armstrong County, about 500 feet upstream from mouth of Buffalo Creek.

*Drainage Area.*—11,400 square miles, including Buffalo Creek.

*Records Available.*—April 16, 1873, to August 31, 1927, when the station was discontinued.

*Gage.*—Standard chain attached to downstream side of bridge; read to tenths twice daily by Mrs. Anna R. Burtner; during high stages more frequently. Elevation of gage zero 734.98 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.



*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of sand and gravel. Control was at a riffle about two miles downstream from the gage, until backwater was created at the station through the construction of Dam No. 4 at Natrona.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 24.0 feet at 1 a. m. January 23; minimum, 1.9 feet from 3 p. m. July 5 to 3 p. m. July 6.

*Ice.*—Stage-discharge relation usually affected by ice.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

*Discharge measurements of Allegheny River at Freeport during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
23	June 16	S. A. Kowalchik Buffalo Creek discharge	Feet 4.24	Sec.-ft. 10,946 76.4
		Total		11,022
24	Aug. 4	S. A. Kowalchik Buffalo Creek discharge	6.26	11,012 170
		Total		11,182

*Daily Mean Gage Height, in feet, of Allegheny River at Freeport for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	12.05	11.3	4.85	12.8	9.9	8.0	8.5	8.25	2.85	10.2	-----
2	6.75	11.75	10.85	4.65	11.65	8.65	9.65	7.65	7.2	2.6	9.85	-----
3	6.9	11.05	9.8	4.4	10.5	7.75	11.5	7.1	6.45	2.5	8.35	-----
4	6.35	10.45	8.55	4.4	9.8	7.1	10.75	7.1	6.7	2.25	6.2	-----
5	6.75	9.7	7.75	4.75	9.95	6.6	10.15	6.8	12.05	2.0	4.65	-----
6	7.4	8.8	6.9	4.7	11.2	6.6	11.0	7.75	10.45	1.9	3.8	-----
7	11.5	8.25	6.3	4.1	11.5	8.35	12.9	7.25	8.65	2.75	3.35	-----
8	11.55	7.05	6.7	3.7	10.65	12.7	11.85	6.65	7.4	3.3	3.2	-----
9	9.95	7.2	7.6	4.65	9.75	16.55	10.45	5.85	6.5	3.65	3.95	-----
10	-----	7.7	8.3	4.75	8.75	14.6	9.3	6.0	5.65	2.9	4.6	-----
11	8.3	9.1	8.05	4.5	8.1	12.7	8.3	6.05	5.1	2.35	3.8	-----
12	8.85	8.7	7.5	4.7	7.5	11.45	7.8	6.0	4.95	2.25	2.95	-----
13	8.7	8.05	7.1	4.75	6.95	11.5	7.2	5.7	4.25	2.1	2.7	-----
14	7.75	7.55	10.2	5.25	7.0	12.45	6.65	5.5	4.3	2.2	2.95	-----
15	6.85	6.85	11.55	5.55	11.1	15.15	5.95	5.55	5.0	2.0	3.55	-----
16	6.3	10.55	10.1	5.3	11.0	14.9	5.45	5.9	5.05	2.0	4.25	-----
17	5.85	17.65	8.7	4.85	11.0	13.35	5.5	8.5	4.0	2.45	3.05	-----
18	5.5	17.05	7.2	4.8	11.3	12.0	5.25	9.85	3.75	2.2	2.95	-----
19	7.3	16.75	6.85	7.95	12.6	11.9	5.45	12.85	3.55	2.6	3.0	-----
20	7.6	15.75	9.85	18.9	11.85	15.2	5.7	14.2	3.75	2.3	4.2	-----
21	7.85	13.85	8.3	19.55	10.0	19.25	5.5	11.5	3.95	2.4	3.9	-----
22	7.65	12.15	9.6	21.0	8.7	20.95	5.55	9.85	3.75	2.65	5.45	-----
23	7.9	10.8	8.9	22.65	8.8	18.2	6.3	8.65	3.55	3.65	5.1	-----
24	8.35	9.8	7.2	18.95	11.85	15.45	6.3	11.3	3.45	5.9	4.9	-----
25	12.25	8.6	6.9	15.35	14.35	13.25	5.9	15.05	3.25	5.0	6.35	-----
26	17.1	8.15	8.1	13.1	15.25	11.45	5.6	16.6	3.25	4.1	6.45	-----
27	16.55	8.4	6.6	10.25	13.95	10.45	6.5	15.9	3.2	3.6	7.05	-----
28	14.45	9.45	5.6	8.5	11.65	9.9	9.55	14.2	3.3	3.7	8.25	-----
29	12.8	8.9	5.7	10.2	-----	9.3	10.35	12.15	3.45	3.15	7.95	-----
30	11.7	10.4	5.3	10.25	-----	8.65	9.6	11.0	3.3	3.45	9.45	-----
31	11.05	-----	4.75	11.45	-----	8.3	-----	9.5	-----	6.1	10.8	-----

NOTE—Gage height Oct. 10 unsatisfactory. Stage-discharge relation Dec. 20-25, Jan. 1-6, 8 and 12-21 affected by ice. Station discontinued Aug. 31, 1927.

## OHIO BASIN—STATION NO. 21

## SOUTH FORK TEN MILE CREEK AT POLLOCK'S MILL

*Location.*—At single-span steel highway bridge, about two miles downstream from Jefferson, at Pollock's Mill, Greene County.

*Drainage Area.*—190 square miles.

*Records Available.*—June 22, 1915, to September 30, 1927.

*Gage.*—Vertical staff attached to downstream corner of right abutment; read to hundredths twice daily by James M. Pollock.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Right bank is high and not subject to overflow; left begins to overflow at a stage of about 7 feet. Bed is a formation of rock shingle and gravel. Control is at a riffle about 200 feet downstream from the gage; may shift occasionally.

*Extremes of Stage.*—Maximum gage height during the year, estimated from hydrograph, 9.2 feet at 4 a. m. November 16; minimum, 1.06 feet at 6 p. m. September 14 and 15.

*Ice.*—Stage-discharge relation usually affected by ice.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

*Discharge measurements of South Fork Ten Mile Creek at Pollock's Mill during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
20	June 23	S. A. Kowalchik	Feet 2.22	Sec.-ft. 178



Daily Mean Gage Height, in feet, of South Fork Ten Mile Creek at Pollock's Mill for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.17	4.42	2.08	2.25	2.37	2.39	2.25	2.80	1.75	1.61	2.35	1.17
2	3.30	3.60	2.05	2.05	2.36	2.35	2.70	2.19	1.80	1.57	2.10	1.16
3	3.10	3.10	2.01	1.90	2.43	2.25	2.52	2.00	1.80	1.53	1.75	1.16
4	2.63	2.70	2.00	2.18	2.75	2.13	2.42	1.97	2.94	1.50	1.55	1.16
5	3.00		3.35	2.65	2.55	2.00	2.29	1.92	3.17	1.49	1.40	1.16
6	3.20	1.97	2.55	2.35	2.47	2.57	2.12	1.90	2.78	1.44	1.30	1.14
7	2.62	1.86	2.20	2.15	2.35	2.73	2.18	1.83	2.49	1.60	1.30	1.12
8	2.56	1.82	2.60	2.00	2.24	3.15	2.07	1.80	2.15	1.77	1.44	1.11
9	2.41	1.80	2.49	2.00	2.18	3.00	2.43	1.83	1.88	1.73	1.50	1.10
10	2.02	1.80	2.70	1.97	2.12	2.77	2.43	1.88	1.83	1.62	1.50	1.10
11	1.96	1.73	2.76	1.85	1.95	2.56	2.18	1.82	1.79	1.45	1.49	1.10
12	1.90	1.77	2.69	1.90	1.90	2.35	2.15	1.78	1.72	1.39	1.46	1.10
13	1.87	1.70	2.56	1.70	1.91	2.00	2.11	1.71	1.66	1.35	1.41	1.08
14	1.83	1.70	2.35	1.85	3.92	2.85	2.08	1.70	2.15	1.31	1.35	1.07
15	1.80	1.98	2.18	1.95	3.54	2.90	1.93	1.82	2.20	1.40	1.47	1.07
16	1.96	6.42	1.90	1.85	2.81	2.45	1.80	2.00	1.97	1.50	1.30	1.37
17	1.89	3.39	1.80	1.77	2.70	2.23	1.80	2.35	1.91	1.60	1.30	1.40
18	1.87	2.90	1.78	1.72	2.75	2.25	1.80	2.50	1.75	1.57	1.39	1.33
19	1.82	2.85	1.75	2.89	3.00	3.88	1.77	2.62	2.45	1.45	1.35	1.40
20	1.80	2.67	1.81	4.20	2.97	3.88	1.73	2.65	2.35	1.40	1.30	1.37
21	1.78	2.28	1.99	4.10	2.92	4.10	1.60	2.66	2.10	1.40	2.05	1.27
22	1.75	2.23	2.20	4.70	2.81	3.43	1.69	2.26	1.85	1.50	1.65	1.19
23	1.71	2.05	2.25	4.57	4.00	2.93	1.80	1.95	2.25	1.75	1.40	1.14
24	2.50	1.90	2.30	3.50	4.10	2.45	1.80	1.88	1.85	1.65	1.38	1.11
25	4.05	1.90	2.85	2.81	4.25	2.33	1.80	1.81	1.77	1.54	1.36	1.10
26	2.89	1.90	4.46	2.47	3.80	2.26	1.77	2.04	2.54	1.47	1.34	1.10
27	2.55	1.97	3.10	1.95	3.20	2.20	1.73	1.95	2.15	1.39	1.30	1.10
28	2.19	1.98	2.80	1.74	2.69	1.99	1.89	1.95	1.99	1.34	1.27	1.08
29	2.05	1.91	3.05	1.90		1.93	1.95	1.91	1.85	1.37	1.25	1.10
30	2.35	2.15	2.70	3.00		1.85	3.10	1.80	1.67	1.40	1.22	1.10
31	3.30		2.44	2.74		1.80		1.79		1.53	1.20	

NOTE—Gage height Nov. 5 unsatisfactory. Stage-discharge relation Dec. 20-23 and Jan. 9-19 affected by ice.

#### OHIO BASIN—STATION NO. 22

### MONONGAHELA RIVER AT SOUTH BROWNSVILLE

*Location.*—At four-span steel highway bridge, known as Brownsville Bridge, South Brownsville, Fayette County, about one-quarter of a mile downstream from Lock No. 5.

*Drainage Area.*—5,130 square miles.

*Records Available.*—February 18, 1915, to September 30, 1927.

*Gage.*—Staff in two sections; lower is at Lock No. 5 attached to downstream side of middle wall, graduated from zero to 32.4 feet; upper is about 200 feet downstream from the lower lock gate, on railroad embankment, graduated from 31.0 feet to 45.5 feet. Gage read to tenths twice daily by Charles W. Keibler; during high stages more frequently. Elevation of gage zero 726.23 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge until August 1919, when they were discontinued owing to the use of flashboards on the control.

*Channel and Control.*—Right bank is high and not subject to overflow; left is overflowed during extremely high stages. Control is Lock and Dam No. 4. Flashboards are used on the dam during low water which affect the stage-discharge relation.

*Extremes of Stage.*—Maximum gage height during the year, 32.5 feet observed at 8 a. m. January 22; minimum, 10.1 feet at 8 a. m. August 29.

*Ice.*—Stage-discharge relation rarely affected by ice.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

Daily Mean Gage Height, in feet, of Monongahela River at South Brownsville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13.05	15.5	12.7	14.2	15.65	14.6	13.0	25.8	11.8	10.95	12.7	11.9
2	13.0	14.95	12.6	12.9	14.7	13.75	17.3	21.2	11.45	12.05	19.1	11.8
3	17.95	14.1	12.35	12.4	14.05	13.25	17.0	16.8	11.5	12.05	16.6	11.9
4	18.4	13.3	12.15	13.0	13.75	12.85	15.35	14.35	12.5	11.7	13.2	11.7
5	16.4	12.75	12.2	14.1	13.45	12.5	15.3	14.1	19.4	11.5	12.9	11.25
6	15.7	12.2	14.4	15.6	15.1	11.8	15.8	14.1	16.5	11.15	13.0	11.15
7	14.05	11.2	15.4	14.5	21.8	12.2	16.0	13.7	13.75	11.05	11.8	11.5
8	12.95	11.25	15.0	12.9	22.5	14.8	15.25	12.0	12.75	11.45	11.15	11.65
9	12.2	12.0	14.8	11.8	17.6	17.75	14.5	11.6	12.3	12.8	13.2	11.4
10	11.15	12.45	15.1	11.8	15.0	17.7	17.5	12.0	11.65	12.55	17.7	11.25
11	10.9	12.2	17.6	12.2	14.1	15.8	18.55	12.1	11.4	12.15	16.0	11.15
12	11.45	12.2	17.0	12.15	12.8	14.65	16.2	12.15	10.75	12.1	13.4	13.5
13	11.4	12.2	15.5	11.7	12.3	12.8	15.05	12.4	11.0	12.15	12.25	13.9
14	11.65	11.9	17.45	11.9	14.6	12.6	13.75	12.55	12.2	12.05	11.15	12.95
15	12.3	11.45	17.6	12.25	16.95	13.6	13.05	13.4	12.95	11.9	10.85	12.65
16	11.8	20.6	15.35	12.25	15.6	13.55	12.55	16.0	14.5	12.0	11.7	12.5
17	11.1	23.8	13.55	12.1	14.6	13.4	11.8	20.7	13.8	11.8	12.65	12.15
18	11.6	20.0	12.8	12.45	14.8	13.1	11.25	20.8	12.75	11.6	11.8	11.9
19	13.3	17.5	11.25	12.95	17.35	13.45	11.6	24.85	11.7	11.6	11.3	11.9
20	13.0	15.6	11.6	17.25	22.1	16.0	11.9	21.3	12.1	12.0	11.25	12.2
21	14.1	13.7	13.4	28.05	20.15	17.7	12.45	16.5	12.7	11.8	11.3	12.25
22	16.95	13.05	23.1	32.1	17.35	18.0	12.5	14.3	12.3	11.6	12.0	12.1
23	14.9	12.8	25.65	29.2	18.8	16.35	14.1	14.05	11.75	11.7	12.3	12.05
24	12.9	12.4	20.5	27.6	24.2	15.2	14.4	14.1	11.4	12.0	11.55	11.9
25	15.0	11.75	18.35	23.4	24.4	14.2	13.15	13.4	11.0	12.5	11.2	11.7
26	18.3	11.8	23.4	18.4	21.8	13.2	12.85	13.15	10.9	12.55	10.85	11.45
27	17.0	12.05	25.0	15.6	18.0	12.2	12.75	13.65	11.1	12.2	10.62	11.5
28	14.9	11.7	19.6	14.25	15.45	12.1	12.7	13.15	11.55	12.05	10.3	11.25
29	13.6	11.55	18.4	14.4		12.6	13.0	12.2	11.4	11.85	10.15	11.4
30	13.2	12.4	17.8	14.05		12.4	15.8	11.45	11.0	11.95	10.55	11.25
31	13.8		16.3	14.3		12.4		11.85		12.25	11.4	



## OHIO BASIN—STATION NO. 23

## YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD.

*Location.*—At two-span steel highway bridge, Friendsville, Garrett County, about 6,000 feet upstream from the mouth of Bear Creek.

*Drainage Area.*—295 square miles.

*Records Available.*—August 17, 1898, to December 31, 1904, and September 1, 1922, to August 31, 1923, chain gage, and October 1, 1923, to September 30, 1927, staff gage.

*Gages.*—Standard chain attached to upstream side of bridge; elevation of gage zero 1,467.82 feet, United States Geological Survey datum. Vertical staff gage attached to right side of pier near downstream end; read to tenths twice daily by J. W. Friend. Elevation of gage zero, 1,469.98 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and rock. Low-water control is at a riffle about 700 feet downstream from the gage, extending from the head of an island to the right and left banks, where the bed is composed of gravel and rock; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.75 feet at 5 p. m. January 21 (discharge, about 5,600 second-feet); minimum, 3.55 feet at 7 a. m. September 7 and 8 (discharge, 5.5 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Regulation.*—There are diurnal fluctuations in stage due to the operation of hydro-electric developments some distance upstream from the gage.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined from 100 to 1,500 second-feet and fairly well defined above and below those limits. Staff gage heights converted to chain gage datum. Daily discharge ascertained by applying to rating table daily mean gage height, computed from a continuous hydrograph, obtained by plotting gage readings. Results good except for extreme stages when they may be only fair.

*Cooperation.*—Station is maintained in cooperation with Charles B. Hawley and Company, Washington, D. C.

*Discharge measurements of Youghiogheny River at Friendsville, Md., during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
24	June 22	S. A. Kowalchik	Feet 5.05	Sec.-ft. 541
25	Aug. 6	do	4.45	183

*Daily Mean Gage Height, in feet, of Youghiogheny River at Friendsville, Md., for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.85	5.1	5.0	5.25	4.9	5.4	4.85	6.85	4.6	4.45	4.75	4.25
2	4.9	5.1	4.9	-----	4.8	5.25	5.85	5.75	4.65	4.15	4.8	4.2
3	-----	5.1	4.85	5.2	4.65	5.35	5.45	5.3	4.65	4.0	4.7	4.15
4	5.2	4.95	4.85	5.15	4.55	5.15	5.5	5.1	4.7	3.97	4.4	3.95
5	5.05	4.65	-----	5.05	5.3	4.75	5.45	5.25	5.8	4.0	4.4	3.85
6	4.9	4.6	5.6	5.0	6.5	5.0	5.5	5.1	5.65	4.05	4.4	4.15
7	4.85	4.15	5.45	4.85	6.15	5.35	5.35	4.8	5.3	4.1	4.05	4.0
8	4.8	4.2	5.65	4.85	5.6	6.55	5.1	4.55	5.05	4.2	4.35	3.95
9	4.65	4.7	5.9	4.55	5.2	6.4	5.35	4.5	4.8	4.3	5.4	4.05
10	4.2	5.45	5.95	4.6	5.0	5.65	5.5	4.35	4.65	4.05	5.1	4.05
11	4.45	5.05	5.9	4.85	4.9	5.25	5.3	4.4	4.55	4.05	4.6	3.9
12	4.7	4.95	5.6	4.6	4.75	4.9	5.15	4.65	4.35	4.05	4.45	3.75
13	4.7	4.9	5.45	4.35	4.6	4.8	5.0	5.05	4.55	4.1	4.4	3.95
14	4.75	4.4	6.1	4.65	5.3	5.0	4.95	4.95	4.7	4.1	4.25	4.05
15	4.85	4.75	5.85	5.0	6.15	5.15	4.7	5.25	5.15	4.1	4.35	4.05
16	4.75	5.15	5.55	-----	5.7	4.75	4.55	5.7	4.8	4.1	4.4	4.2
17	4.75	5.45	5.5	-----	5.6	4.7	4.35	6.4	4.65	4.1	4.3	4.15
18	4.45	5.25	5.45	-----	5.85	4.75	4.35	6.25	4.55	4.25	4.2	3.95
19	4.65	5.3	5.25	-----	5.95	4.85	4.35	6.7	-----	4.05	4.15	4.2
20	5.1	5.25	5.25	7.15	5.85	5.75	4.5	5.85	4.95	4.05	4.65	4.0
21	5.65	5.05	5.5	8.25	5.8	5.9	4.45	5.4	4.75	4.0	4.8	4.05
22	5.35	5.1	6.3	7.85	5.5	5.95	4.95	5.25	4.65	4.15	4.65	4.05
23	5.15	5.2	6.75	7.35	5.9	5.6	4.9	5.2	4.6	4.3	4.55	3.95
24	5.25	5.2	6.2	7.05	6.55	5.4	4.7	5.0	4.65	4.25	4.35	4.0
25	5.85	4.7	6.15	6.15	6.3	5.3	4.65	4.75	4.75	4.25	4.25	3.9
26	5.6	4.85	6.4	5.6	6.15	4.95	4.4	4.9	4.75	4.1	4.25	4.05
27	5.6	4.9	6.5	5.25	5.5	4.55	4.7	5.35	4.8	4.1	4.3	4.05
28	5.5	4.5	6.1	5.05	5.6	4.35	5.0	5.05	4.75	4.1	4.1	4.05
29	5.3	4.2	6.05	5.25	-----	4.35	4.9	4.8	4.65	4.1	4.25	4.05
30	5.2	4.85	5.9	5.1	-----	4.35	6.3	4.55	4.6	4.1	4.5	4.15
31	-----	-----	5.35	5.15	-----	4.35	-----	4.35	-----	4.0	4.25	-----

NOTE—Gage height Oct. 3, 31, Dec. 5, Jan. 2, 16-19 and June 19 not observed. Stage-discharge relation Dec. 4-12 and Dec. 16 to Jan. 19 affected by ice.



Daily discharge, in second-feet, of Youghiogheny River at Friendsville, Md., for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	360	515	449	380	388	744	360	2,170	235	174	306	110
2	388	515	388	340	332	624	1,110	1,030	258	85	332	97
3	420	515	360	300	258	704	786	663	258	53	281	85
4	586	418	280	280	214	550	828	515	281	48	156	46
5	482	258	260	260	663	306	786	624	1,070	53	156	31
6	388	235	280	240	1,790	449	828	515	946	63	156	85
7	360	85	340	220	1,460	704	704	332	663	73	63	53
8	332	97	440	190	908	1,920	515	214	482	97	140	46
9	258	281	500	170	586	1,680	704	193	332	124	744	63
10	97	786	450	160	449	946	828	140	258	63	515	63
11	174	482	360	150	388	624	663	156	214	63	235	38
12	281	418	420	140	306	388	550	258	140	63	174	20
13	281	388	786	120	235	332	449	482	214	73	156	46
14	306	156	1,350	120	663	449	418	418	281	73	110	63
15	360	306	1,110	120	1,460	550	281	624	550	73	140	63
16	306	550	650	120	985	306	214	985	332	73	156	97
17	306	786	380	130	908	281	140	1,680	258	73	124	85
18	174	624	280	140	1,110	306	140	1,460	214	110	97	46
19	258	663	240	170	1,190	360	140	2,040	220	63	85	97
20	515	624	280	2,720	1,110	1,030	193	1,110	418	63	258	53
21	946	482	380	4,420	1,070	1,150	174	744	306	53	332	63
22	704	515	500	3,700	828	1,190	418	624	258	85	258	63
23	550	586	480	3,040	1,150	908	388	586	235	124	214	46
24	624	586	420	2,430	1,920	744	281	449	258	110	140	53
25	1,110	281	500	1,460	1,570	663	258	306	306	110	110	38
26	908	360	900	908	1,460	418	156	388	306	73	110	63
27	908	388	850	624	828	214	281	704	332	73	124	63
28	828	193	750	482	908	140	449	482	306	73	73	63
29	663	97	600	624	-----	140	388	332	258	73	110	63
30	586	360	480	515	-----	140	1,570	214	235	73	193	85
31	550	-----	420	550	-----	140	-----	140	-----	53	110	-----

NOTE—Discharge estimated Oct. 3, 31 and June 19, because of no gage height record, from weather records and study of gage height graph, and Dec. 4-12 and Dec. 16 to Jan. 19, because of use, from weather records, study of gage height graph and comparison with similar studies for Casselman River at Markleton and Laurel Hill Creek at Ursina.

Monthly discharge of Youghiogheny River at Friendsville, Md., for the year ending Sept. 30, 1927.

(Drainage area 295 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,110	97	484	1.64	1.89
November	786	85	418	1.42	1.58
December	1,350	240	512	1.74	2.01
January	4,420	120	814	2.76	3.18
February	1,920	214	898	3.04	3.17
March	1,920	140	616	2.09	2.41
April	1,570	140	500	1.69	1.89
May	2,170	140	664	2.25	2.59
June	1,070	140	347	1.18	1.32
July	174	48	79.4	.269	.31
August	744	63	199	.675	.78
September	110	20	62.9	.213	.24
The Year	4,420	20	464	1.57	21.37

OHIO BASIN—STATION NO. 24

## CASSELMAN RIVER AT MARKLETON

*Location.*—At two-span steel highway bridge, Markleton, Somerset County.

*Drainage Area.*—365 square miles.

*Records Available.*—August 13, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by N. B. Sanner.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Control is a 6 inch water main, backed with gravel and boulders, about 250 feet downstream from the gage, at the head of a series of riffles; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 7.4 feet at 2 a. m. January 5 (discharge, about 6,700 second-feet); minimum 1.84 feet at 5 p. m. September 27 and on September 29 (discharge, 34 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 2,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Casselman River at Markleton during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
20	June 9	Geo. Weber	3.64	822
21	22	S. A. Kowalchik	3.00	355



Daily Mean Gage Height, in feet, of Casselman River at Markleton for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.94	3.60	3.38	3.46	3.51	4.00	3.80	5.18	3.35	2.49	2.88	2.24
2	2.95	3.42	3.21	3.15	3.48	3.84	4.62	4.38	3.18	2.78	2.83	2.15
3	3.78	3.32	3.10	3.28	3.65	3.55	5.10	4.04	3.45	2.64	2.56	2.09
4	3.24	3.18	3.23	3.22	3.92	3.44	4.62	3.92	4.35	2.48	2.38	2.05
5	3.06	3.11	2.94	3.19	4.41	3.32	4.30	3.92	6.30	2.39	2.28	2.01
6	3.20	3.04	2.88	2.93	5.65	3.96	4.48	3.64	4.78	2.36	2.19	1.95
7	3.15	2.98	2.84	2.84	5.30	4.77	4.42	3.48	4.25	2.37	2.13	1.95
8	2.98	2.92	3.36	2.86	4.54	5.85	4.12	3.38	3.92	2.96	2.38	1.96
9	2.85	3.02	4.16	2.85	4.18	5.18	4.20	3.60	3.66	2.48	3.08	2.01
10	2.78	4.14	3.72	2.90	3.98	4.55	4.14	3.39	3.46	2.37	2.76	2.00
11	2.72	3.59	3.58	2.82	3.80	4.24	4.49	3.38	3.33	2.30	2.46	2.97
12	2.68	3.32	3.48	2.76	3.63	4.02	4.09	3.32	3.14	2.34	2.32	2.52
13	2.70	3.26	3.95	2.80	3.55	3.90	3.98	3.36	3.03	2.40	2.25	2.26
14	2.81	3.20	4.76	2.92	4.18	3.98	3.99	3.28	4.32	2.25	2.24	2.18
15	2.68	3.14	4.18	3.05	5.00	3.90	3.71	3.66	4.12	2.23	2.74	2.10
16	2.58	4.73	3.66	2.86	4.38	3.65	3.60	3.82	3.58	2.26	2.48	2.08
17	2.68	5.12	3.40	2.86	4.36	3.50	3.61	4.18	3.25	2.22	2.28	2.00
18	2.90	4.37	3.30	2.86	4.39	3.40	3.44	4.38	3.12	2.18	2.44	1.95
19	3.24	4.58	2.96	3.67	4.50	3.72	3.35	4.68	3.51	2.11	2.42	2.19
20	3.64	4.11	3.30	6.02	4.18	4.97	3.38	4.20	3.42	2.06	3.09	2.21
21	3.96	3.87	3.90	6.85	4.20	5.05	3.21	3.88	3.16	2.06	3.50	2.12
22	3.48	3.68	4.15	6.87	4.02	4.76	3.52	3.68	3.02	2.30	2.92	2.02
23	3.25	3.54	4.05	5.90	4.62	4.32	3.46	4.00	3.15	3.50	2.66	1.96
24	3.42	3.44	3.75	5.60	5.35	4.05	3.31	3.68	2.92	2.81	2.53	1.94
25	4.62	3.36	4.82	4.74	5.18	3.85	3.23	3.50	2.83	2.48	2.40	1.90
26	4.12	3.35	4.95	4.25	5.22	3.75	3.17	3.68	2.96	2.30	2.32	1.88
27	3.82	3.53	4.20	3.59	4.66	3.78	3.36	4.25	2.90	2.19	2.27	1.86
28	3.60	3.24	3.98	3.58	4.28	3.60	3.56	3.68	2.72	2.14	2.22	1.86
29	3.52	3.20	4.02	4.12	-----	3.45	3.52	3.51	2.62	2.09	2.22	1.84
30	3.73	3.46	3.76	-----	-----	3.32	5.28	3.48	2.54	2.13	2.39	1.86
31	3.66	-----	3.48	3.89	-----	3.28	-----	3.48	-----	2.38	2.38	-----

NOTE—Stage-discharge relation Dec. 4 to Jan. 5 and Jan. 8-19 affected by ice.

Daily discharge, in second-feet, of Casselman River at Markleton for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	336	771	616	460	691	1,140	946	2,580	581	163	307	98
2	341	616	481	420	691	994	1,800	1,570	481	263	284	78
3	946	546	421	400	814	731	2,440	1,140	654	210	184	66
4	514	481	360	360	1,040	654	1,800	1,040	1,570	160	133	60
5	394	421	340	360	1,570	546	1,460	1,040	4,500	135	107	54
6	481	394	320	331	3,200	1,090	1,690	814	2,050	128	86	46
7	451	356	320	289	2,720	2,050	1,570	691	1,350	130	74	46
8	356	326	420	280	1,690	3,570	1,240	616	1,040	346	133	47
9	294	366	600	260	1,350	2,580	1,350	771	814	160	421	54
10	263	1,240	500	240	1,140	1,800	1,240	616	654	130	255	52
11	239	771	550	240	946	1,350	1,690	616	581	112	155	351
12	224	546	600	240	814	1,140	1,240	546	451	122	117	172
13	231	514	850	240	731	1,040	1,140	581	394	138	100	102
14	276	481	1,600	260	1,350	1,140	1,140	546	1,460	100	98	84
15	224	451	1,000	280	2,310	1,040	856	814	1,240	95	247	68
16	190	1,920	700	280	1,570	814	771	946	771	102	160	65
17	224	2,440	460	280	1,570	691	771	1,350	514	93	107	52
18	316	1,570	340	280	1,570	616	654	1,570	421	84	149	46
19	514	1,800	300	320	1,690	856	581	1,920	691	70	144	86
20	814	1,240	360	3,990	1,350	2,310	616	1,350	616	62	421	90
21	1,090	994	550	5,450	1,350	2,310	481	1,040	451	62	691	72
22	691	856	600	5,700	1,140	2,050	691	856	366	112	326	55
23	514	731	550	3,780	1,800	1,460	654	1,140	451	691	217	47
24	616	654	480	3,200	2,880	1,140	546	856	326	276	175	45
25	1,690	581	650	1,920	2,580	994	514	691	284	160	133	40
26	1,240	581	1,000	1,350	2,580	901	451	856	346	112	117	38
27	946	731	900	771	1,920	946	581	1,350	316	86	105	36
28	771	514	750	771	1,460	771	731	856	239	76	93	36
29	691	481	600	1,240	-----	654	691	691	203	66	93	34
30	901	654	550	1,140	-----	546	2,720	691	178	74	135	36
31	814	-----	480	1,040	-----	546	-----	691	-----	133	133	-----

NOTE—Discharge Dec. 4 to Jan. 5 and Jan. 8-19 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Laurel Hill Creek at Ursina, Youghiogheny River at Connellsville and Stony Creek at Johnstown.

Monthly discharge of Casselman River at Markleton for the year ending Sept. 30, 1927.

(Drainage area 365 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,690	190	568	1.56	1.80
November	2,440	326	801	2.19	2.44
December	1,600	300	589	1.61	1.86
January	5,700	240	1,170	3.20	3.69
February	3,200	691	1,590	4.36	4.54
March	3,570	546	1,240	3.40	3.92
April	2,720	451	1,100	3.01	3.36
May	2,580	546	995	2.73	3.15
June	4,500	178	800	2.19	2.44
July	691	62	150	.411	.47
August	691	74	190	.520	.60
September	351	34	71.9	.197	.22
The Year	5,700	34	766	2.10	28.49

OHIO BASIN—STATION NO. 25

## LAUREL HILL CREEK AT URSINA

*Location.*—At two-span steel highway bridge, Ursina, Somerset County.

*Drainage Area.*—122 square miles.

*Records Available.*—August 12, 1913, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by Miss Lizzie R. Case.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and boulders. Control is at a riffle, where the bed is composed of gravel and boulders, a short distance downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.0 feet at 11 p. m. January 21 (discharge, about 7,500 second-feet); minimum, 1.58 feet at 5 p. m. September 25 (discharge, 4.8 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.



**Accuracy.**—Stage-discharge relation affected by ice and changed presumably during the high flow of January 21, 1927. Two rating curves were used; both well defined below 2,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Discharge measurements of Laurel Hill Creek at Ursina during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
21	June 9a	Geo. Weber	2.66	309
22	22	S. A. Kowalchik	2.44	190
23	Aug. 5b	do	2.29	122

a Measurement made by wading 60 feet downstream from gage.  
b Measurement made by wading 400 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Laurel Hill Creek at Ursina for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.46	2.99	2.54	2.66	2.84	2.78	2.79	3.70	2.46	2.17	2.97	2.18
2	2.52	2.80	2.48	2.15	2.72	2.78	3.17	3.05	2.44	2.20	2.63	2.06
3	2.34	2.65	2.35	2.44	2.65	2.58	3.44	2.83	2.57	2.20	2.41	2.00
4	2.37	2.36	2.38	2.33	2.94	2.32	3.24	2.84	3.30	2.03	2.40	1.64
5	2.38	2.41	2.40	2.44	3.68	2.43	3.22	2.79	4.15	2.08	2.28	1.64
6	2.43	2.32	2.40	2.32	4.17	2.64	3.00	2.54	3.52	2.19	2.10	1.74
7	2.44	2.34	2.58	2.39	3.95	3.30	2.96	2.46	3.10	1.85	2.08	1.86
8	2.58	2.40	3.35	2.42	3.32	5.00	2.84	2.49	2.85	2.74	2.38	1.81
9	2.41	2.40	2.97	2.70	2.92	4.05	2.92	2.79	2.66	2.28	2.64	1.85
10	2.50	2.60	2.75	2.80	2.77	3.33	2.90	2.60	2.52	2.20	2.21	1.88
11	2.20	2.54	2.84	2.55	2.34	3.12	2.84	2.58	2.43	2.12	2.08	2.00
12	2.31	2.30	2.72	2.55	2.64	2.78	2.72	2.49	2.40	2.10	2.26	1.96
13	2.80	2.20	2.98	2.43	2.47	2.77	2.74	2.47	2.24	2.04	2.26	1.84
14	2.72	2.27	3.55	3.09	3.48	2.90	2.61	2.50	3.18	1.98	2.18	1.90
15	2.43	2.33	3.23	2.77	3.90	2.90	2.48	2.75	3.00	2.10	2.23	1.92
16	2.34	2.92	3.04	3.06	3.27	2.75	2.44	3.01	2.56	2.10	2.07	1.91
17	2.37	2.76	2.75	3.20	3.14	2.66	2.38	3.72	2.54	1.84	2.01	1.79
18	2.96	2.83	2.46	2.95	3.18	2.65	2.31	3.78	2.44	1.95	2.36	1.86
19	2.97	2.50	2.54	3.39	3.14	2.72	2.44	4.02	2.63	1.99	3.01	1.96
20	3.12	2.58	2.69	5.13	3.05	3.38	2.41	3.45	2.50	1.89	3.66	1.88
21	3.09	2.52	2.78	6.38	2.86	3.88	2.41	3.40	2.46	1.86	3.42	1.80
22	2.82	2.36	2.82	7.16	2.78	3.70	2.76	2.87	2.51	2.48	2.93	1.78
23	2.63	2.38	2.83	5.44	3.18	3.20	2.79	3.01	2.35	2.74	2.78	1.82
24	2.75	2.46	2.58	4.18	3.48	2.98	2.66	2.78	2.44	2.28	2.62	1.73
25		2.56	2.79	3.58	3.60	2.77	2.46	2.71	2.40	1.97	2.46	1.64
26	3.34	2.66	3.40	3.13	3.54	2.61	2.58	2.92	2.60	2.01	2.39	1.66
27	3.00	2.36	3.29	2.80	3.33	2.76	2.75	3.34	2.37	1.72	2.30	1.84
28	2.92	2.42	2.85	2.66	3.10	2.69	2.74	2.95	2.23	1.82	2.07	1.82
29	2.72	2.38	2.85	2.97		2.54	2.87	2.81	2.21	1.86	2.17	1.77
30	2.95	2.57	2.68	2.99		2.51	4.10	2.73	2.18		2.34	1.72
31	2.84		2.60	3.06		2.44		2.58		2.15	2.35	

NOTE—Gage height Oct. 25 and July 30 unsatisfactory. Stage-discharge relation Dec. 4 to Jan. 3 and Jan. 7-19 affected by ice.

*Daily discharge, in second-feet, of Laurel Hill Creek at Ursina for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	225	544	267	170	424	385	392	1,030	200	91	509	94
2	256	420	235	150	347	385	630	562	191	99	291	63
3	168	330	172	140	304	262	835	418	237	99	177	50
4	182	177	130	164	489	140	696	424	730	57	172	7.2
5	186	200	120	215	1,030	186	663	392	1,520	68	125	7.2
6	210	159	120	159	1,520	297	529	241	870	96	72	14
7	215	168	140	140	1,260	730	503	200	596	26	68	27
8	289	195	240	120	730	2,440	424	214	430	360	164	20
9	200	195	220	120	476	1,310	476	392	310	125	297	26
10	245	300	200	120	379	765	463	273	230	99	102	29
11	115	267	220	120	148	596	424	262	186	77	68	50
12	154	150	240	120	297	385	347	214	172	72	119	43
13	420	115	280	120	205	379	360	205	112	59	119	24
14	372	140	600	170	870	463	279	219	663	46	94	32
15	210	164	460	200	1,210	463	210	366	529	72	109	36
16	168	498	240	200	696	366	191	529	251	72	65	34
17	182	396	150	200	630	310	164	1,030	241	24	52	18
18	524	440	120	200	663	304	136	1,120	191	41	156	27
19	530	245	120	240	630	347	191	1,310	291	48	529	43
20	615	289	140	2,570	562	800	177	835	219	31	990	29
21	615	256	200	4,420	437	1,210	177	800	200	27	800	19
22	433	177	240	5,870	385	1,030	372	444	224	210	483	17
23	318	186	240	2,980	663	663	392	529	152	360	385	22
24	390	225	190	1,520	870	516	310	385	191	125	285	13
25	950	278	220	950	950	379	200	340	172	45	200	7.2
26	790	336	400	630	910	279	262	476	273	52	168	8.1
27	550	177	400	398	765	372	366	765	160	12	132	24
28	498	205	340	310	596	328	360	496	109	22	65	22
29	372	186	280	509		241	444	404	102	27	91	16
30	518	284	240	522		224	1,420	353	94	44	148	12
31	446		200	562		191		262		86	152	

NOTE—Discharge estimated Oct. 25 and July 30, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with discharge for other stations in same drainage basin, and Dec. 4 to Jan. 3 and Jan. 7-19, because of ice, from weather records, study of gage height graph and comparison with similar studies for Casselman River at Markleton and Stony Creek at Johnstown.

*Monthly discharge of Laurel Hill Creek at Ursina for the year ending Sept. 30, 1927*  
(Drainage area 122 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,700	115	366	3.00	3.46
November	544	115	257	2.11	2.35
December	600	120	238	1.95	2.25
January	5,870	120	784	6.43	7.41
February	1,520	148	659	5.40	5.62
March	2,440	140	540	4.43	5.11
April	1,420	136	413	3.39	3.78
May	1,310	200	500	4.10	4.73
June	1,520	94	329	2.70	3.01
July	360	12	86.2	.707	.82
August	990	52	232	1.90	2.19
September	94	7.2	27.8	.228	.25
The Year	5,870	7.2	368	3.02	40.98



## OHIO BASIN—STATION NO. 26

## YOUGHIOGHENY RIVER AT CONNELLSVILLE

*Location.*—At two-span steel highway bridge between New Haven and Conneltsville, Fayette County.

*Drainage Area.*—1,320 square miles.

*Records Available.*—July 22, 1908, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by H. F. Atkins, employee of the West Penn Power Company. Elevation of gage zero 860.13 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of gravel and rocks. Control is at a riffle about 500 feet downstream from the gage, where bed is rock formation; permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 11.8 feet at noon January 22 (discharge, 29,100 second-feet); minimum, 0.76 foot at 4.45 p. m. September 27 (discharge, 148 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 30,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Cooperation.*—Station is maintained in cooperation with the West Penn Power Company, Pittsburgh, Pennsylvania.

## Discharge measurements of Youghiogheny River at Conneltsville during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
39	June 10	Geo. Weber	3.32	2,380
40	21	S. A. Kowalchik	3.01	1,840
41	24	E. E. R. Dornbach	2.72	1,630
42	July 13a	do	1.47	500
43	21t	do	1.14	323
44	23	do	3.41	2,550
45	24	do	3.17	2,190
46	Aug. 5	S. A. Kowalchik	1.98	845
47	Sept. 12a	E. E. R. Dornbach	1.70	676
48	24c	do	1.03	244

a Measurement made by wading 150 feet upstream from gage.  
b Measurement made by wading 175 feet upstream from gage.  
c Measurement made by wading 275 feet upstream from gage.

## Daily Mean Gage Height, in feet, of Youghiogheny River at Conneltsville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.30	4.02	3.60	4.15	3.92	4.52	3.35	7.60	3.45	2.17	2.42	1.76
2	3.12	3.80	3.30	4.08	3.58	4.27	5.30	5.76	3.08	2.10	3.32	1.46
3		3.82	3.15	3.12	3.45		5.75	4.77	3.22	2.08	2.66	1.31
4	3.55	3.60	3.30	3.28	3.45	3.60	5.21	4.25	5.02	1.76	2.38	1.15
5	3.78	3.30	3.73	3.42	4.40	3.43	4.86	4.37	8.78	1.65	1.95	1.21
6	3.78	2.65		3.11			4.82	3.92	6.30	1.54	1.87	1.02
7	3.58	2.92		2.97	6.90	5.00	4.74	3.56	5.05	1.47	1.82	1.17
8	3.15	2.85	4.05	3.14	5.65	6.50	4.38	3.38	4.42	2.31	1.85	1.13
9	3.10	2.82	4.80	2.98	4.68	7.05	4.36	3.57	3.90	2.35	2.73	1.16
10	2.60		5.25	2.94	4.22	6.40	4.91	3.44	3.43	2.00	3.27	1.14
11	2.35		4.65	2.91	3.92	4.85	4.80	3.38	3.10	1.64	2.45	1.49
12	2.62	3.20	4.45	2.74	3.65	4.28	4.30	3.30	2.78	1.42	2.10	1.83
13	2.95	3.25	4.40	2.65	3.58	4.02	4.04	3.40	2.56	1.42	1.91	1.44
14	3.02	3.15	5.70	2.69	4.05	3.96	4.02	3.50	3.56	1.44	1.74	1.28
15	2.99	2.80	5.12	2.77	6.44	4.26	3.63	4.45	4.67	1.47	2.16	1.19
16	2.76	3.60	4.35	2.70		3.90	3.34	5.15	3.60	1.38	2.18	1.13
17	2.86	5.50	3.85	2.55	5.12	3.75	3.38	6.05	3.07	1.44	1.86	1.11
18	3.00	4.60	3.55	2.87	5.02	3.49	3.30	6.35	2.85	1.68	1.89	1.16
19	3.68	4.75	3.20	5.07	5.56	3.60	3.02	7.28	2.80	1.27	2.00	1.39
20	3.75	4.22	2.99	8.90	5.15	4.85	3.12	6.00	3.56	1.27	2.35	1.53
21	4.55	3.92	4.55	11.17	4.74	6.20	2.93	5.00	3.15	1.20	4.26	1.22
22	4.00	3.40	5.60	11.30	4.48	6.20	3.48	4.28	2.89	1.65	3.10	1.13
23	3.71	3.33	5.55	9.60	5.25	5.40	3.98	4.50	2.82	3.17	2.84	1.05
24	3.95	3.44	5.35	8.37	6.93	4.80	3.54	4.26	2.62	3.00	2.44	1.08
25	5.35	3.42		6.50	7.00		3.30	3.78	2.60	2.16	2.05	1.01
26	5.25	2.94	6.02	5.35	7.10	3.96	3.10	3.90	2.97	1.83	1.86	1.27
27		3.70	5.98	4.20		3.60	3.30	5.00	2.72	1.50	1.66	.80
28	4.32	3.19	5.32	3.82	5.08	3.42	3.89	4.48	2.61	1.35	1.63	.92
29	4.00	3.16	5.68	4.28		3.45	3.68		2.38	1.33	1.64	.99
30	4.24	3.32	5.52	4.38		3.08	5.98	3.70	2.26	1.35	2.01	1.02
31	4.44		4.12	4.38				3.69		1.50	2.04	

NOTE—Gage height Oct. 3, Dec. 25 and May 29 not observed and Oct. 27, Nov. 10, 11, Dec. 6, 7, Feb. 6, 16, 27, Mar. 3, 6, 25 and 31 unsatisfactory. Stage-discharge relation Dec. 4-12 and Dec. 17 to Jan. 19 affected by ice.



Daily discharge, in second-feet, of Youghiogheny River at Connellsville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,400	3,490	2,850	2,400	3,320	4,370	2,550	12,200	2,550	1,060	1,300	720
2	2,120	3,160	2,400	2,200	2,850	4,010	6,020	7,190	2,120	1,020	2,400	505
3	2,600	3,160	2,260	2,200	2,550	3,400	7,190	4,960	2,260	1,020	1,620	410
4	2,850	2,850	1,900	2,200	2,550	2,850	5,800	3,830	5,380	720	1,300	322
5	3,160	2,400	1,700	2,000	4,190	2,550	5,170	4,190	16,400	645	885	350
6	3,160	1,510	1,700	2,000	8,000	3,200	4,960	3,320	8,450	575	800	245
7	2,850	1,860	1,900	1,700	10,100	5,380	4,760	2,850	5,380	505	760	322
8	2,260	1,740	2,000	1,700	6,710	8,970	4,190	2,550	4,190	1,200	800	322
9	2,120	1,740	2,800	1,500	4,760	10,400	4,190	2,850	3,320	1,250	1,620	322
10	1,510	2,600	3,000	1,500	3,830	8,710	5,170	2,550	2,550	930	2,400	322
11	1,250	3,200	2,800	1,400	3,320	4,960	4,960	2,550	2,120	645	1,350	540
12	1,510	2,260	2,800	1,300	2,850	4,010	4,010	2,400	1,740	470	1,020	800
13	1,990	2,260	4,190	1,300	2,850	3,490	3,490	2,550	1,510	470	840	505
14	1,990	2,260	6,950	1,400	3,490	3,490	3,490	2,700	2,850	505	720	410
15	1,990	1,740	5,590	1,500	8,710	4,010	2,850	4,190	4,760	505	1,060	350
16	1,740	2,850	4,190	1,400	6,500	3,320	2,400	5,800	2,850	470	1,110	322
17	1,860	6,470	3,000	1,400	5,590	3,160	2,550	7,680	2,120	505	800	295
18	1,990	4,560	2,200	1,500	5,380	2,700	2,260	8,710	1,740	680	840	322
19	3,000	4,960	1,600	2,200	6,710	2,850	1,990	11,300	1,740	380	930	470
20	3,160	3,830	1,600	16,800	5,800	4,960	2,120	7,680	2,850	380	1,250	575
21	4,560	3,320	2,200	26,500	4,760	8,190	1,860	5,380	2,260	350	4,010	350
22	3,490	2,550	3,000	27,000	4,370	8,190	2,700	4,010	1,860	645	2,120	322
23	3,000	2,400	2,800	19,600	5,800	6,240	3,490	4,370	1,740	2,260	1,740	270
24	3,490	2,550	2,600	14,900	10,100	4,960	2,700	4,010	1,510	1,990	1,350	295
25	6,240	2,550	3,400	8,970	10,400	3,800	2,400	3,160	1,510	1,060	975	245
26	5,800	1,860	5,000	6,240	10,700	3,490	2,120	3,320	1,990	800	800	380
27	4,600	3,000	4,600	3,830	7,500	2,850	2,400	5,380	1,620	540	645	161
28	4,010	2,260	3,600	3,160	5,590	2,550	3,320	4,370	1,510	440	645	209
29	3,490	2,260	3,200	4,010	-----	2,550	3,000	3,400	1,300	440	645	240
30	3,830	2,400	2,800	4,190	-----	2,120	7,680	3,000	1,160	440	930	245
31	4,190	-----	2,600	4,190	-----	2,200	-----	3,000	-----	540	975	-----

NOTE—Discharge estimated Oct. 3, Dec. 25 and May 29, because of no gage height record, Oct. 27, Nov. 10, 11, Dec. 6, 7, Feb. 6, 16, 27, Mar. 3, 6, 25 and 31, because of unsatisfactory gage height record, from weather records, study of gage height graph and comparison with records for other stations in the same drainage basin, and Dec. 4-12 and Dec. 17 to Jan. 19, because of ice, from weather records, study of gage height graph and comparison with similar studies for Youghiogheny River at Friendsville, Casselman River at Markleton, Laurel Hill Creek at Ursina and comparison with gage height record for U. S. Weather Bureau station at West Newton.

Monthly discharge of Youghiogheny River at Connellsville for the year ending Sept. 30, 1927.  
(Drainage area 1,320 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	6,240	1,250	2,970	2.25	2.59
November	6,470	1,510	2,800	2.12	2.36
December	6,950	1,600	3,010	2.28	2.63
January	27,000	1,300	5,550	4.20	4.84
February	10,700	2,550	5,690	4.31	4.49
March	10,400	2,120	4,450	3.37	3.88
April	7,680	1,860	3,730	2.83	3.16
May	12,200	2,400	4,690	3.55	4.09
June	16,400	1,160	3,110	2.36	2.63
July	2,260	350	756	.573	.66
August	4,010	645	1,250	.947	1.09
September	800	161	372	.282	.31
The Year	27,000	161	3,190	2.42	32.73

OHIO BASIN—STATION NO. 27

## YOUGHIOGHENY RIVER AT SUTERSVILLE

*Location.*—At three-span steel highway bridge, Sutersville, Westmoreland County.

*Drainage Area.*—1,680 square miles.

*Records Available.*—June 11, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by George E. Smeltzer. Elevation of gage zero 733.14 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge.

*Channel and Control.*—Right bank is low and subject to overflow; left is high and does not overflow. Bed is composed of shifting sand and gravel overlaying a rocky bed. Control is at a riffle about 400 feet downstream from the gage at right side of stream; probably permanent.

*Extremes of Discharge.*—Maximum open-water stage during the year, 14.50 feet observed at 8 a. m. January 22 (discharge, 28,500 second-feet); a stage of 16.0 feet, estimated from hydrograph, was reached at 2 a. m. December 22, but the water was held back by an ice jam; minimum, 2.36 feet at 4 p. m. September 25 and 8 a. m. September 28 (discharge, 183 second-feet).

*Ice.*—Stage-discharge relation permanent except when affected by ice.

*Accuracy.*—Rating curve fairly well defined. Gage read to half-tenths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

Discharge measurements of Youghiogheny River at Sutersville during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
21	June 21	S. A. Kowalchik	Feet 4.94	Sec.-ft. 2,500



Daily Mean Gage Height, in feet, of Youghiogheny River at Sutersville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.68	6.32	4.75	5.60	5.65	6.32	4.95	8.53	5.00	3.70	5.15	3.30
2	4.52	5.92	4.68	5.22	5.35	5.92	6.65	7.37	4.68	3.55	5.15	3.11
3	5.20	5.52	4.40	4.92	5.25	5.60	7.05	6.25	4.52	3.35	4.70	2.95
4	5.40	5.20	4.32	4.92	5.68	5.22	6.95	5.72	6.47	3.40	4.15	2.95
5	4.95	4.92	5.00	5.22	5.85	4.98	6.48	5.72	11.41	3.13	3.65	2.78
6	5.37	4.68	5.38	5.02	8.86	5.10	6.28	5.40	8.66	3.08	3.48	2.68
7	5.15	4.50	5.20	4.62	8.68	5.88	6.12	5.00	6.98	3.07	3.31	2.70
8	4.95	4.28	5.15	4.20	7.52	7.75	5.92	4.82	6.22	3.75	3.60	2.78
9	4.60	4.20	6.42	4.20	6.68	9.37	5.68	4.98	5.68	3.85	4.32	2.70
10	4.25	4.70	6.80	4.35	5.90	7.38	6.20	4.98	5.30	3.39	4.65	2.71
11	4.05	5.28	6.62	5.45	5.58	6.50	6.10	4.80	4.90	3.22	4.30	3.02
12	3.92	4.65	6.12	7.05	5.25	5.90	5.80	4.70	4.62	2.95	3.68	3.14
13	3.88	4.52	5.80	7.20	5.00	5.50	5.55	4.58	4.38	3.02	3.50	3.00
14	4.45	4.40	7.00	7.55	5.82	5.65	5.45	4.88	4.85	2.98	3.35	3.04
15	4.35	4.27	6.90	7.00	8.37	6.00	5.22	5.18	6.42	3.19	4.00	2.81
16	4.10	5.48	6.00	6.28	7.28	5.62	4.88	5.78	5.60	3.02	3.70	2.65
17	4.10	7.23	5.48	6.22	6.75	5.25	4.72	7.10	4.85	2.99	3.58	2.73
18	4.22	6.25	5.23	6.65	6.52	5.12	4.65	7.38	4.48	3.11	3.60	2.64
19	5.00	6.32	7.29	7.68	7.00	5.30	4.48	8.52	4.60	3.03	3.60	2.85
20	5.10	6.10	8.05	10.58	6.90	7.70	4.52	7.72	5.12	2.95	3.48	2.85
21	5.70	5.60	11.07	12.95	6.40	8.87	4.52	6.50	4.98	2.77	5.11	2.90
22	5.60	5.15	13.79	14.30	6.20	8.82	4.78	5.75	4.48	2.78	4.75	2.74
23	5.20	4.92	10.00	13.15	7.15	7.50	5.38	6.12	4.32	3.50	4.35	2.64
24	4.85	4.82	6.60	10.50	9.30	6.60	5.10	5.58	4.22	4.77	4.08	2.55
25	6.38	4.68	7.00	8.88	9.62	6.10	4.85	5.32	3.95	4.02	3.70	2.38
26	7.30	4.42	9.10	7.32	9.55	5.72	4.65	5.17	4.42	3.38	3.50	2.52
27	6.38	4.55	8.08	6.20	7.95	5.55	4.65	6.05	4.42	3.17	3.38	2.70
28	5.92	4.72	6.88	5.58	6.82	5.22	5.12	6.02	4.18	2.86	3.24	2.43
29	5.58	4.30	6.82	5.90	-----	4.98	5.18	5.35	3.98	2.99	3.27	2.60
30	5.65	4.48	6.38	6.32	-----	4.78	5.65	5.05	3.80	2.96	3.09	2.50
31	6.22	-----	5.78	6.18	-----	4.78	-----	5.35	-----	3.55	-----	-----

NOTE—Stage-discharge relation Dec. 19-23 and Jan. 10-20 affected by ice.

Daily discharge, in second-feet, of Youghiogheny River at Sutersville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,470	5,400	2,620	4,000	4,000	5,400	2,930	10,200	2,930	1,250	3,260	850
2	2,190	4,600	2,470	3,250	3,610	4,600	6,000	7,600	2,470	1,100	3,260	670
3	3,260	3,800	2,060	2,770	3,260	4,000	6,800	5,200	2,190	900	2,470	552
4	3,610	3,260	1,930	2,770	4,200	3,260	6,800	4,200	5,800	950	1,810	552
5	2,930	2,770	2,930	3,260	4,400	2,930	5,800	4,200	18,100	715	1,200	427
6	3,610	2,470	3,610	2,930	11,200	3,090	5,400	3,610	10,700	670	1,050	363
7	3,260	2,190	3,260	2,330	10,700	4,600	5,000	2,930	6,800	630	850	375
8	2,930	1,930	3,260	1,810	7,900	8,500	4,600	2,620	5,200	1,300	1,150	427
9	2,330	1,810	5,600	1,810	6,200	12,400	4,200	2,930	4,200	1,420	1,930	375
10	1,810	2,470	6,400	1,700	4,600	7,600	5,200	2,930	3,430	950	2,330	382
11	1,580	3,430	6,000	1,700	4,000	5,800	5,000	2,620	2,770	760	1,930	590
12	1,470	2,330	5,000	1,700	3,260	4,600	4,400	2,470	2,330	552	1,250	715
13	1,470	2,190	4,400	1,700	2,930	3,800	4,000	2,330	2,060	590	1,050	590
14	2,060	2,060	6,800	1,800	4,400	4,000	3,610	2,770	2,620	575	900	630
15	2,060	1,930	6,600	1,800	10,000	4,800	3,260	3,260	5,600	760	1,580	448
16	1,690	3,800	4,800	1,800	7,400	4,000	2,770	4,400	4,000	590	1,250	345
17	1,690	7,200	3,800	1,800	6,400	3,260	2,470	7,000	2,620	582	1,150	394
18	1,810	5,200	3,260	1,800	5,800	3,090	2,330	7,600	2,190	670	1,150	590
19	2,930	5,400	2,800	2,800	6,800	3,430	2,190	10,200	2,330	630	1,150	478
20	3,090	5,000	2,400	10,000	6,600	8,300	2,190	8,300	3,090	552	1,050	478
21	4,200	4,000	2,400	23,200	5,600	11,200	2,190	5,800	2,930	420	3,090	515
22	4,000	3,260	3,000	27,700	5,200	10,900	2,620	4,400	2,190	427	2,620	401
23	3,260	2,770	4,400	23,800	7,200	7,900	3,610	5,000	1,930	1,050	2,060	330
24	2,620	2,620	6,000	15,500	12,200	6,000	3,090	4,600	1,810	2,620	1,690	288
25	5,600	2,470	6,800	11,200	12,900	5,000	2,620	3,430	1,520	1,580	1,250	194
26	7,400	2,060	11,700	7,400	12,900	4,200	2,330	3,260	2,060	950	1,050	271
27	5,600	2,330	9,300	5,200	9,000	4,000	2,330	4,800	2,060	715	950	375
28	4,600	2,470	6,600	4,000	6,400	3,260	3,090	4,800	1,810	485	805	222
29	4,000	1,930	6,400	4,600	-----	2,930	3,260	3,610	1,580	582	805	315
30	4,000	2,190	5,600	5,400	-----	2,620	4,000	2,930	1,360	560	670	260
31	5,200	-----	4,400	5,200	-----	2,620	-----	3,610	-----	1,100	1,050	-----

NOTE—Discharge Dec. 19-23 and Jan. 10-20 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Youghiogheny River at Connellsville.

Monthly discharge of Youghiogheny River at Sutersville for the year ending Sept. 30, 1927.

(Drainage area 1,680 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	7,400	1,470	3,180	1.89	2.18
November	7,200	1,810	3,180	1.89	2.11
December	11,700	1,930	4,730	2.82	3.25
January	27,700	1,700	6,020	3.58	4.13
February	12,900	2,930	6,750	4.02	4.19
March	12,400	2,620	5,230	3.11	3.58
April	6,800	2,190	3,800	2.26	2.52
May	10,200	2,330	4,630	2.76	3.18
June	18,100	1,360	3,690	2.20	2.46
July	2,620	420	859	.511	.59
August	3,260	670	1,540	.917	1.06
September	850	194	447	.266	.30
The Year	27,700	194	3,660	2.18	29.55

#### OHIO BASIN—STATION NO. 28

#### TURTLE CREEK NEAR TRAFFORD

*Location.*—At single-span steel highway bridge, Blackburn Station, Pennsylvania Railroad, about one and a quarter miles northeast of Trafford, Westmoreland County.

*Drainage Area.*—55 square miles.

*Records Available.*—July 28, 1914, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by E. G. Perks.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of hardpan and gravel; not subject to change. Control is at a riffle about 50 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 5.0 feet at 10 p. m. February 25 (discharge, 2,300 second-feet); minimum, 0.50 foot at 9 p. m. July 14 (discharge 4.5 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.



**Accuracy.**—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 300 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for high stages and estimated periods when they are fair.

*Discharge measurements of Turtle Creek near Trafford during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
30	June 20	S. A. Kowalchik	Feet 0.90	Sec.-ft. 20.3

*Daily Mean Gage Height, in feet, of Turtle Creek near Trafford for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.07	1.84	1.35	1.31	1.49	1.66	1.79	1.17	0.93	0.70	0.78	0.58
2	1.09	1.59	1.26	1.30	1.46	1.62	2.62	1.14	.92	.71	.74	.58
3	1.04	1.41	1.22	1.26	1.43	1.47	2.25	1.13	.90	.70	.70	.58
4	1.00	1.32	1.17	1.40	1.38	1.42	1.82	1.28	1.45	.70	.70	
5	1.03	1.25	1.96	1.40	2.05	1.39	1.67	1.26	1.69	.70	.69	
6	1.04	1.19	1.92	1.43	1.83	1.51	1.51	1.21	1.32	.70	.66	.58
7	1.00	1.12	1.55	1.43	1.62	1.56	1.38	1.18	1.22	.71	.84	.58
8	.97	1.06	1.89	1.41	1.48	2.06	1.32	1.16		.70	.87	.63
9	.92	1.23	1.73	1.41	1.43	1.68	1.39	1.06		.70	.97	.61
10	.90	1.17	1.78	1.33	1.86	1.52	1.28	1.10		.69	.85	.60
11	.90	1.05	1.72	1.26	1.31	1.42	1.25	1.02		.67	.74	
12	.99	1.04	1.61	1.24	1.20	1.35	1.22	.99		.58	.71	
13	.88	1.00		1.24	1.20	1.29	1.25	.98		.54	.69	
14	.87	.97		1.24	1.85	1.75	1.17	.99		.51	.77	
15	.85	1.08	1.53		1.72	1.46	1.12	1.30		.61	.79	
16	.82	2.70	1.46	1.24	1.65	1.37	1.12	1.43		.81	.72	
17	.88	1.94	1.42	1.24	1.50	1.32	1.12	1.49		.79	.68	
18	1.38	1.80	1.38		1.49	1.45	1.08	1.69		.74	.78	.63
19	1.22	1.78	1.32	2.15	1.51	1.90	1.07	3.21		.71	.74	.75
20	1.16	1.60	1.69	2.65	1.55	3.72	1.05	2.30		.71	.71	.69
21	1.08	1.45	1.41	2.75	1.51	3.15	1.03	1.61		.71	.69	.66
22	1.05	1.36	1.43	3.10	1.63	2.20	1.37	1.54		.78	.67	.60
23	1.01	1.26	1.32	2.95	2.18	1.81	1.18	1.49		1.22	.64	.58
24	1.64	1.22	1.32	2.30	2.41	1.68	1.15	1.47		.77	.61	.58
25	2.23	1.21		1.75	3.02	1.50	1.12	1.42		.73	.59	
26	1.76	1.21	2.46	1.57	2.75	1.46	1.17	1.36		.72	.58	
27	1.47	1.24	1.76	1.38	1.91	1.40	1.18	1.27	.85	.70	.58	
28	1.31	1.15	1.74	1.42	1.73	1.33	1.33	1.02	.74	.69	.58	
29	1.48	1.13	1.63	1.78			1.23	.94	.69	.71	.58	
30	1.49	1.48	1.49	1.86			1.20	.93	.71	.75	.61	
31	2.12		1.43	1.64		1.27		.92		1.00	.60	

NOTE—Stage-discharge relation Dec. 5, 6, 16-22, 25-30 and Jan. 4-18 affected by ice. Gage height Dec. 13, 14, 25, Jan. 15, 18, Mar. 29, 30, June 8-26, Sept. 4, 5, 11-17 and 25-30 not observed.

*Daily discharge, in second-feet, of Turtle Creek near Trafford for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	214	79	72	108	153	196	50	23	9.0	12	5.9
2	40	132	64	70	101	141	573	46	22	9.4	10	5.9
3	34	90	57	64	95	103	393	45	20	9.0	9.0	5.9
4	29	74	50	55	84	92	207	67	99	9.0	9.0	6
5	33	62	48	48	301	86	156	64	162	9.0	8.7	6
6	34	53	42	42	210	112	112	56	74	9.0	7.8	5.9
7	29	44	122	26	141	125	84	51	57	9.4	16	5.9
8	26	36	233	30	106	301	74	49	42	9.0	18	7.0
9	22	59	175	30	95	159	86	26	42	9.0	26	6.5
10	20	50	192	26	81	115	67	41	30	8.7	16	6.3
11	20	35	172	24	72	92	62	31	24	8.1	10	8
12	28	34	135	24	54	79	57	28	16	5.9	9.4	6
13	19	29	200	26	54	68	62	27	13	5.1	8.7	6
14	18	26	200	30	218	182	50	28	24	4.6	12	6
15	16	39	118	36	172	101	44	70	30	6.5	13	5
16	14	629	70	42	150	83	44	95	20	14	9.7	5
17	19	254	48	48	110	74	44	108	13	13	8.4	5
18	84	199	42	55	108	99	39	162	20	10	12	7.0
19	57	192	42	346	112	237	37	939	24	9.4	10	11
20	49	135	48	601	122	1,280	35	417	20	9.4	9.4	8.7
21	39	99	60	658	112	939	33	138	16	9.4	8.7	7.8
22	35	81	80	809	144	366	83	120	16	12	8.1	6.3
23	30	64	74	778	369	203	51	108	8	57	7.2	5.9
24	135	57	74	417	467	159	48	103	6	12	6.5	5.9
25	393	56	110	182	809	110	44	92	6	10	6.1	6
26	185	56	140	128	658	101	50	81	13	9.7	5.9	6
27	103	60	140	84	241	88	51	65	16	9.0	5.9	6
28	72	48	120	92	175	75	75	31	10	8.7	5.9	5
29	106	45	110	192		70	59	24	8.7	9.4	5.9	5
30	108	106	100	222		70	54	23	9.4	11	6.5	5
31	323		95	147		65		22		29	6.3	

NOTE—Discharge estimated Dec. 5, 6, 16-22, 25-30 and Jan. 4-18, because of ice. from weather records, study of gage height graph and comparison with similar studies for Crooked Creek at Hileman's Farm and Loyalhanna Creek at New Alexandria, and Dec. 13, 14, 25, Jan. 15, 18, Mar. 29, 30, June 8, 26, Sept. 4, 5, 11-17 and 25-30, because of no gage height record. from weather records, study of gage height graph and discharge of Loyalhanna Creek at New Alexandria.

*Monthly discharge of Turtle Creek near Trafford for the year ending Sept. 30, 1927.*

(Drainage area 55 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	393	14	69.6	1.27	1.46
November	629	26	102	1.85	2.06
December	233	42	105	1.91	2.20
January	809	24	175	3.18	3.67
February	809	54	195	3.55	3.70
March	1,280	65	191	3.47	4.00
April	573	33	99	1.80	2.01
May	939	22	104	1.89	2.18
June	162	6	29.5	.536	.60
July	57	4.6	11.4	.207	.24
August	26	5.9	9.94	.181	.21
September	11	5	6.26	.114	.13
The Year	1,280	4.6	90.9	1.65	22.46



## OHIO BASIN—STATION NO. 29

## CHARTIERS CREEK AT CARNEGIE

*Location.*—At single-span steel railroad bridge, known as Freight House Bridge, siding of the Chartiers Branch, Pennsylvania Railroad, Carnegie, Allegheny County.

*Drainage Area.*—260 square miles.

*Records Available.*—June 6, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of Freight House Bridge; read by F. J. Wenger.

*Discharge Measurements.*—Made from downstream side of Freight House Bridge, upstream side of Branch Line Bridge about 100 feet upstream from the gage, or by wading.

*Channel and Control.*—Both banks are high and not subject to overflow. Bed is composed of mud and slag over a rocky floor. Control is at the first of a series of riffles about 600 feet downstream from the gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, 10.50 feet at 3 p. m. November 16 (discharge, 6,710 second-feet); minimum, 1.40 feet from 3 p. m. September 27 to 3 p. m. September 28 (discharge, 17 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined to 100 second-feet and fairly well defined from 100 to 1,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

*Discharge measurements of Chartiers Creek at Carnegie during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
23	June 23	S. A. Kowalehik	Feet 2.29	Sec.-ft. 101

*Daily Mean Gage Height, in feet, of Chartiers Creek at Carnegie for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.25	5.16	3.49	3.49	3.91	4.36	4.27	3.14	2.70	2.07	3.07	1.59
2	4.40	4.20	3.22	3.29	3.97	4.18	5.84	2.95	2.59	2.01	2.83	1.55
3	3.82	3.82	3.12	3.28	4.17	3.97	5.29	2.90	2.51	1.97	2.36	1.50
4	3.52	3.63	3.27	3.39	4.29	3.78	4.51	3.25	5.20	1.89	2.10	1.46
5	3.52	3.48	5.54	3.78	5.16	3.76	4.09	2.91	7.49	1.92	2.00	1.43
6	4.00	3.34	5.02	3.56	4.96	4.44	3.94	2.80	4.23	1.97	1.91	1.43
7	3.56	3.22	4.16	3.32	4.47	4.98	3.75	2.66	3.63	1.97	1.86	1.46
8	3.28	3.04	4.27	3.09	4.11	6.33	3.55	2.79	3.29	1.96	2.15	1.56
9	3.10	3.16	4.15	2.91	3.77	4.74	4.02	2.83	3.06	1.89	2.32	1.53
10	3.00	3.15	4.17	2.90	3.73	4.34	3.70	2.86	2.88	1.78	2.10	1.55
11	2.90	2.95	4.07	2.94	3.55	4.01	3.46	3.04	2.79	1.80	1.95	1.84
12	2.80	2.84	3.87	2.99	3.41	3.82	3.34	2.85	2.68	1.86	1.84	1.63
13	2.78	2.82	4.19	2.90	3.45	3.68	3.40	2.68	2.61	1.78	1.89	1.63
14	2.70	2.77	4.11	3.70	5.16	3.80	3.21	2.56	3.15	1.76	2.33	1.56
15	2.62	3.12	3.85	3.28	4.96	3.65	2.90	2.70	2.99	1.93	2.11	1.53
16	2.56	9.18	3.66	2.70	4.38	3.59	3.04	2.74	2.80	2.05	1.94	1.43
17	2.53	6.92	-----	2.89	4.10	3.41	3.10	2.79	2.58	2.30	1.85	1.53
18	2.94	4.75	-----	2.79	4.16	4.22	2.97	2.96	2.54	2.15	1.94	1.65
19	2.74	4.00	-----	6.63	3.96	5.48	2.96	4.47	2.80	1.96	1.84	1.91
20	2.59	3.87	-----	6.85	4.00	6.98	2.84	3.66	2.60	2.04	1.79	1.76
21	2.45	3.82	3.58	6.72	4.10	7.75	3.18	3.20	2.48	1.95	2.05	1.63
22	2.40	3.67	3.37	8.12	4.06	5.81	3.53	2.95	2.38	3.75	1.84	1.56
23	2.35	3.50	3.24	7.07	5.40	4.85	3.08	3.39	2.32	5.90	1.75	1.48
24	2.61	3.40	3.15	5.61	6.44	4.24	2.91	3.20	2.28	3.36	1.68	1.47
25	4.91	3.29	3.77	4.81	6.09	4.13	2.82	2.97	2.19	2.40	1.66	1.45
26	4.61	3.31	6.15	4.34	6.34	4.03	2.85	2.95	3.64	2.17	1.64	1.45
27	3.59	3.24	4.60	3.81	5.42	3.87	3.00	3.12	2.69	2.07	1.59	1.42
28	3.29	3.09	3.96	3.88	4.77	3.67	2.95	2.84	2.32	1.98	1.58	1.40
29	3.22	3.14	4.06	4.03	-----	3.54	2.99	2.72	2.19	1.96	1.61	1.58
30	3.68	3.77	3.73	4.91	-----	3.49	3.46	2.66	2.13	2.08	1.67	1.47
31	5.61	-----	3.50	4.51	-----	3.52	-----	2.93	-----	2.38	1.58	-----

NOTE—Gage height Dec. 17-20 unsatisfactory. Stage-discharge relation Jan. 10-18 affected by ice.

*Daily discharge, in second-feet, of Chartiers Creek at Carnegie for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	1,200	397	397	563	793	745	275	161	66	246	26
2	793	698	290	323	585	698	1,500	219	142	59	194	24
3	520	520	260	323	698	585	1,260	206	125	55	103	21
4	397	458	306	359	745	520	842	306	1,200	47	69	19
5	397	397	1,390	520	1,200	499	652	206	3,050	50	58	18
6	607	341	1,080	417	1,080	793	585	182	698	55	49	18
7	417	290	698	323	842	1,080	499	152	458	55	44	19
8	323	246	745	260	652	1,960	417	182	323	54	75	24
9	260	275	698	206	499	944	607	194	246	47	97	22
10	232	275	698	150	499	745	478	194	206	38	69	24
11	206	219	652	130	417	607	378	246	182	39	53	43
12	182	194	542	120	359	520	341	194	161	44	43	28
13	182	182	698	140	378	478	359	161	142	38	47	28
14	161	172	652	160	1,200	520	290	134	275	36	98	24
15	142	260	542	160	1,080	458	206	161	232	51	70	22
16	134	4,960	458	130	793	437	246	172	182	64	52	18
17	134	2,470	480	120	652	359	260	182	142	94	44	22
18	219	1,000	440	140	698	698	219	219	134	75	52	29
19	172	607	400	2,200	585	1,390	219	842	182	54	43	49
20	142	542	440	2,380	607	2,560	194	458	142	62	38	36
21	117	520	437	2,290	652	3,360	290	290	122	53	64	28
22	109	458	341	3,680	652	1,590	417	219	106	499	43	24
23	102	397	306	2,640	1,340	1,000	260	359	97	1,670	36	20
24	142	359	275	1,470	2,040	698	206	290	91	341	31	20
25	1,040	323	499	1,000	1,820	652	182	219	80	109	30	19
26	892	323	1,880	745	1,960	607	194	219	458	77	28	19
27	437	306	892	520	1,340	542	232	260	161	66	26	18
28	323	260	585	563	1,000	458	219	194	97	56	25	17
29	290	275	652	607	-----	417	232	161	80	54	27	25
30	478	499	499	1,040	-----	397	378	152	73	67	30	20
31	1,470	-----	397	842	-----	397	-----	219	-----	106	25	-----

NOTE—Discharge estimated Dec. 17-20, because of unsatisfactory gage height record, from weather records, study of gage height graph and record for Raccoon Creek at Moffatt's Mill, and Jan. 10-18, because of ice, from weather records, study of gage height graph and comparison with similar studies for Loyalhanna Creek at New Alexandria, Shenango River at Sharon and Connoquenessing Creek near Hazen.



Monthly discharge of Chartiers Creek at Carnegie for the year ending Sept. 30, 1927.  
(Drainage area 260 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,470	102	365	1.40	1.61
November	4,960	172	634	2.44	2.72
December	1,880	260	601	2.31	2.66
January	3,680	120	786	3.02	3.48
February	2,040	359	891	3.43	3.57
March	3,360	359	863	3.32	3.83
April	1,590	182	433	1.67	1.86
May	842	134	241	.927	1.07
June	3,050	73	325	1.25	1.40
July	1,670	36	135	.519	.60
August	246	25	61.6	.237	.27
September	49	17	24.1	.093	.10
The Year	4,960	17	444	1.71	23.17

## OHIO BASIN—STATION NO. 30

## SHENANGO RIVER NEAR JAMESTOWN

*Location.*—At two-span steel highway bridge, known as Frye Bridge, about one and one-half miles downstream from Jamestown, Mercer County.

*Drainage Area.*—182 square miles.

*Records Available.*—December 2, 1919, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by Hugh P. McClimans. Elevation of gage zero 955.00 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is low and overflow begins at a stage of 7 feet; left is high and not subject to overflow. Bed is composed of gravel and boulders. Control is at a riffle about 50 feet downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 8.38 feet at 8.30 a. m. January 23 (discharge 2,530 second-feet); minimum, 1.08 feet at 5 p. m. September 28 (discharge 2.8 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 1,600 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results fair.

Discharge measurements of Shenango River near Jamestown during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
35	July 19a	S. A. Kowalehik	Feet 1.38	Sec.-ft. 13.0

a Measurement made by wading 1,500 feet downstream from gage.

Daily Mean Gage Height, in feet, of Shenango River near Jamestown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.47	4.12	3.58	2.21	4.57	3.41	2.42	2.42	2.30	1.35	1.41	1.36
2	3.15	3.91	3.26	2.39	4.41	3.10	2.51	2.24	2.17	1.37	1.37	1.32
3	3.00	3.78	3.02	2.20	4.28	2.89	2.56	2.21	2.04	1.34	1.34	1.31
4	2.77	3.52	2.81	2.17	4.05	2.76	2.49	2.29	2.35	1.29	1.31	1.31
5	3.44	3.38	2.68	2.11	3.91	3.14	3.20	2.21	2.47	1.27	1.23	1.27
6	3.87	3.17	2.95	2.19	3.78	3.15	3.23	2.13	2.45	1.36	1.27	1.24
7	3.80	2.87	2.84	2.17	3.75	3.45	3.05	2.05	2.49	1.54	1.30	1.23
8	4.25	2.78	2.62	2.22	3.65	4.28	2.92	2.00	2.46	1.48	1.32	1.23
9	4.16	3.02	2.62	2.58	3.55	4.68	2.72	1.97	2.45	1.35	1.41	1.22
10	3.65	3.08	2.56	2.42	3.29	4.11	2.48	2.04	2.37	1.34	1.58	1.23
11	3.70	2.96	2.49	2.38	3.06	3.77	2.36	1.99	2.22	1.33	1.60	1.27
12	3.49	2.90	2.55	2.35	2.83	3.47	2.27	1.94	1.97	1.27	1.44	1.32
13	3.36	2.80	3.10	2.29	2.75	3.18	-----	1.88	1.92	1.28	1.43	1.34
14	3.30	2.66	3.54	2.31	2.63	3.52	-----	1.88	1.82	1.29	1.41	1.43
15	3.18	2.86	3.61	2.38	2.25	3.37	2.06	1.92	1.76	1.31	1.38	1.49
16	2.92	5.21	3.51	2.38	2.26	3.40	2.03	2.42	1.71	1.32	1.37	1.52
17	2.79	5.05	3.38	2.40	3.09	3.29	1.99	2.42	1.57	1.33	1.39	1.43
18	2.92	5.50	3.32	2.33	3.19	3.15	1.97	2.60	1.53	1.33	1.38	1.43
19	2.90	5.12	3.24	4.13	3.08	3.24	2.00	3.32	1.68	1.36	1.48	1.39
20	2.87	5.00	3.31	6.48	2.96	3.47	2.15	3.38	1.74	1.44	1.43	1.39
21	2.90	4.13	3.12	6.22	2.78	4.92	2.31	3.24	1.72	1.42	1.39	1.35
22	3.16	3.46	2.28	7.95	2.62	6.49	2.28	3.06	1.72	1.69	1.32	1.37
23	3.36	3.24	2.19	8.31	3.48	5.52	2.18	3.07	1.86	2.05	1.34	1.33
24	3.89	3.05	2.20	8.15	4.18	4.53	2.08	4.14	1.78	1.86	1.37	1.32
25	5.46	3.03	2.21	7.88	3.98	3.67	2.12	6.13	1.69	1.79	1.29	1.32
26	6.25	3.18	2.28	7.65	4.21	3.20	2.20	5.72	1.62	1.73	1.27	1.31
27	6.54	3.69	2.45	6.93	4.01	3.14	2.32	5.07	1.53	1.71	1.31	1.31
28	5.96	3.52	2.43	6.58	3.65	2.67	2.39	3.74	1.47	1.62	1.32	1.09
29	5.04	3.72	2.37	5.73	-----	2.64	2.52	3.40	1.40	1.57	1.30	1.24
30	4.19	3.65	2.33	5.71	-----	2.59	2.62	3.03	1.27	1.52	1.28	1.25
31	4.58	-----	2.27	4.66	-----	2.50	-----	2.51	-----	1.45	1.28	-----

NOTE—Stage-discharge relation Dec. 6-8, 17-21, Jan. 8-20 and 24-30 affected by ice. Gage height Apr. 13 and 14 not observed.



Daily discharge, in second-feet, of Shenango River near Jamestown for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	480	675	510	148	850	450	191	191	169	14	19	15
2	390	605	420	191	780	360	213	158	138	16	16	12
3	330	570	330	148	745	304	224	148	117	13	13	11
4	268	480	280	138	640	268	213	169	180	9.6	11	11
5	450	450	257	127	605	360	390	148	202	8.4	6.5	8.4
6	605	390	220	148	570	390	390	138	202	15	8.4	6.9
7	570	292	190	138	570	450	330	117	213	32	10	6.5
8	710	280	200	130	510	745	304	107	202	25	12	6.5
9	710	330	225	130	510	885	257	101	202	14	19	6.1
10	510	360	224	120	420	675	213	117	180	13	37	6.5
11	540	317	213	110	360	570	180	105	148	12	40	8.4
12	480	304	224	100	292	480	158	96	101	8.4	22	12
13	450	280	360	100	268	390	160	84	92	9.0	21	13
14	420	246	480	90	246	480	140	84	74	9.6	19	21
15	390	292	510	90	158	450	117	92	64	11	16	26
16	304	1,080	480	90	158	450	117	191	56	12	16	30
17	280	1,000	150	90	360	420	107	191	36	12	17	21
18	304	1,200	150	90	390	390	101	235	31	12	16	21
19	304	1,040	200	400	360	390	107	420	51	15	25	17
20	292	1,000	210	900	317	480	138	450	60	22	21	17
21	304	675	190	1,480	280	960	169	390	57	20	17	14
22	390	480	169	2,330	235	1,600	169	360	57	53	12	16
23	450	390	148	2,480	480	1,200	148	360	81	117	13	12
24	605	330	148	1,600	710	815	127	675	67	81	16	12
25	1,200	330	148	1,100	640	540	127	1,440	53	68	9.6	12
26	1,480	390	169	700	710	390	148	1,280	43	59	8.4	11
27	1,600	540	202	500	640	360	169	1,040	31	56	11	11
28	1,400	480	202	360	510	246	191	540	24	43	12	2.9
29	1,000	540	180	360	-----	246	213	450	18	36	10	6.9
30	710	510	180	500	-----	235	235	330	8.4	30	9.0	7.3
31	850	-----	158	885	-----	213	-----	213	-----	22	9.0	-----

NOTE—Discharge estimated Dec. 6-8, 17-21, Jan. 8-20 and 24-30, because of ice, from weather records, study of gage height graph and comparison with similar studies for Little Shenango River at Greenville, Pymatuning Creek near Orangeville, Shenango River at Sharon and Oil Creek near Rouseville, and Apr. 13 and 14, because of no gage height record, from weather records and discharge of Shenango River at Sharon.

Monthly discharge of Shenango River near Jamestown for the year ending Sept. 30, 1927.

(Drainage area 182 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,600	268	606	3.33	3.84
November	1,200	246	528	2.90	3.24
December	510	148	250	1.37	1.58
January	2,480	90	509	2.80	3.23
February	850	158	476	2.62	2.73
March	1,600	213	522	2.87	3.31
April	390	101	192	1.06	1.18
May	1,440	84	336	1.85	2.13
June	213	8.4	98.6	.542	.60
July	117	8.4	28.0	.154	.18
August	40	6.5	15.8	.087	.10
September	30	2.9	12.6	.060	.08
The Year	2,480	2.9	297	1.63	22.20

OHIO BASIN—STATION NO. 31

## LITTLE SHENANGO RIVER AT GREENVILLE

*Location.*—At single-span steel highway bridge, known as Quaker Bridge, Columbia Avenue, Greenville, Mercer County.

*Drainage Area.*—107 square miles.

*Records Available.*—January 1, 1914, to August 31, 1923, and November 19, 1925, to September 30, 1927.

*Gage.*—Vertical staff attached to upstream corner of right abutment; read by Benj. F. Tullar. Elevation of gage zero 944.50 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of sand and gravel. Control for low stages is a coarse gravel and boulder bar, about 200 feet downstream from gage, permanent; for high stages is a dam on the Shenango River just downstream from the mouth of the Little Shenango River.

*Extremes of Discharge.*—Maximum open-water stage during the year, estimated from hydrograph, 6.2 feet at 2 p. m. January 22 (discharge, 2,640 second-feet); a stage of 7.85 feet was observed at 8.30 a. m. January 20, but the water was held back by an ice jam; minimum, 1.02 feet at 6 p. m. September 26 (discharge, 3.9 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,800 second-feet and fairly well defined between 1,800 and 2,800 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

Discharge measurements of Little Shenango River at Greenville during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
35	July 18a	S. A. Kowalchik	1.27	24.3

a Measurement made by wading 1,000 feet upstream from gage.



Daily Mean Gage Height, in feet, of Little Shenango River at Greenville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.78	2.98	2.38	1.75	2.36	2.03	1.93	1.63	1.66	1.26	1.78	1.15
2	1.89	2.52	2.12	1.69	2.14	1.97	2.16	1.56	1.58	1.24	1.58	1.15
3	2.30	2.31	2.03	1.76	2.06	1.67	2.31	1.71	1.51	1.26	1.33	1.15
4	2.09	2.13	1.93	1.89	2.35	1.78	2.16	1.87	1.93	1.29	1.25	1.14
5	2.34	2.04	1.68	1.80	2.03	1.81	2.61	1.90	2.46	1.26	1.24	1.06
6	3.66	1.96	1.88	1.76	2.55	2.26	2.65	1.70	1.96	1.27	1.24	1.04
7	3.28	1.97	1.89	1.79	2.57	2.68	2.18	1.59	1.72	1.35	1.21	1.08
8	2.41	1.90	1.96	1.78	2.25	3.34	1.97	1.54	1.61	1.48	1.29	1.09
9	2.09	2.40	2.21	1.73	2.07	2.69	1.85	1.51	1.54	1.32	1.32	1.11
10	1.94	3.54	2.20	1.71	1.99	2.28	1.81	1.60	1.49	1.23	1.25	1.14
11	2.19	2.54	2.09	1.67	1.94	2.27	1.74	1.66	1.45	1.21	1.20	1.25
12	2.03	2.12	1.95	1.65	1.85	2.26	1.69	1.60	1.45	1.19	1.18	1.21
13	1.94	1.99	2.09	1.67	1.79	2.21	1.70	1.55	1.42	1.18	1.17	1.26
14	1.82	1.97	3.61	1.80	2.29	2.81	1.68	1.62	1.45	1.17	1.20	1.35
15	1.80	1.98	2.51	1.80	3.00	2.63	1.60	1.83	1.46	1.20	1.19	1.22
16	1.77	4.13	2.13	1.78	2.37	2.25	1.61	2.68	1.40	1.26	1.17	1.15
17	1.73	4.12	2.19	1.78	2.61	2.10	1.77	2.43	1.33	1.23	1.16	1.11
18	1.88	2.85	2.16	1.77	2.57	2.27	1.78	2.19	1.36	1.25	1.15	1.15
19	2.24	2.75	2.40	3.08	2.11	2.63	1.68	2.89	1.47	1.24	1.13	1.36
20	2.07	2.42	2.14	7.32	1.87	3.63	1.72	2.83	1.54	1.21	1.16	1.24
21	2.01	2.26	2.08	5.77	1.95	5.04	1.65	2.16	1.45	1.17	1.89	1.16
22	1.98	2.16	1.96	5.86	1.81	3.93	1.62	1.88	1.38	1.30	1.51	1.09
23	2.30	2.08	1.94	4.72	2.58	2.69	1.61	2.22	1.45	1.69	1.29	1.10
24	3.08	2.06	1.95	3.42	3.55	2.41	1.59	2.70	1.37	1.62	1.23	1.13
25	5.24	2.19	2.18	2.77	2.98	2.26	1.61	2.79	1.34	1.49	1.16	1.11
26	4.02	2.67	1.88	2.80	3.28	2.16	1.80	2.67	1.50	1.32	1.14	1.03
27	2.72	2.98	1.83	3.10	2.42	2.53	2.14	2.49	1.38	1.27	1.13	1.12
28	2.35	2.42	1.83	2.94	2.20	2.20	2.22	2.09	1.29	1.25	1.14	1.10
29	2.45	2.39	1.85	3.38	-----	2.08	1.86	1.84	1.26	1.28	1.18	1.13
30	2.52	2.90	1.73	4.42	-----	2.01	1.70	1.76	1.26	1.47	1.21	1.14
31	3.22	-----	1.75	3.55	-----	1.97	-----	1.71	-----	1.68	1.23	-----

NOTE—Stage-discharge relation Dec. 6-11, Dec. 17 to Jan. 21 and Jan. 26-31 affected by ice.

Daily discharge, in second-feet, of Little Shenango River at Greenville for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	531	279	55	262	171	140	78	83	24	106	11
2	131	316	184	55	198	150	198	67	70	22	70	11
3	244	244	171	65	171	85	244	92	59	24	33	11
4	184	198	140	75	262	106	198	126	140	28	23	10
5	262	171	87	75	171	112	354	133	298	24	22	5.0
6	900	148	90	70	335	228	374	90	148	25	22	4.4
7	681	150	90	65	335	394	212	71	94	36	18	5.8
8	279	132	80	60	228	707	150	63	75	54	28	6.2
9	184	279	110	55	171	394	122	59	63	32	32	7.4
10	143	788	160	55	156	244	112	73	56	21	23	10
11	212	335	160	50	143	228	98	83	50	18	17	23
12	171	184	146	50	122	228	88	73	50	16	15	18
13	143	156	184	50	108	212	90	65	45	15	14	24
14	115	150	843	46	244	438	87	76	50	14	17	36
15	110	153	316	42	531	374	73	117	51	17	16	19
16	104	1,140	198	42	262	228	75	394	42	24	14	11
17	96	1,140	75	42	354	184	104	298	33	21	12	7.4
18	128	461	75	42	335	228	106	212	37	23	11	11
19	228	416	110	46	184	374	87	484	52	22	8.9	37
20	171	279	110	75	126	843	94	461	63	18	12	22
21	158	228	100	700	146	1,780	82	198	50	14	131	12
22	153	198	80	2,420	112	1,020	76	128	39	29	59	6.2
23	244	184	75	1,560	354	394	75	212	50	88	28	6.7
24	580	171	75	734	843	279	71	394	38	76	21	8.9
25	1,920	212	110	416	531	228	75	438	34	56	12	7.4
26	1,080	374	100	240	681	198	110	374	57	32	10	4.2
27	394	531	90	200	279	335	198	316	39	25	8.9	8.1
28	262	279	80	180	212	212	212	184	28	23	10	6.7
29	298	279	75	200	-----	184	124	119	24	27	15	8.9
30	316	484	65	360	-----	158	90	102	24	52	18	10
31	630	-----	55	440	-----	150	-----	92	-----	87	21	-----

NOTE—Discharge Dec. 6-11, Dec. 17 to Jan. 21 and Jan. 26-31 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Shenango River at Jamestown and Sharon, Pymatuning Creek near Orangeville and Oil Creek near Rouseville.

Monthly discharge of Little Shenango River at Greenville for the year ending Sept. 30, 1927.

(Drainage area 107 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	1,920	96	343	3.21	3.70
November	1,140	133	344	3.21	3.58
December	843	55	146	1.36	1.57
January	2,420	42	276	2.58	2.97
February	843	108	281	2.63	2.74
March	1,780	85	351	3.28	3.78
April	374	71	137	1.28	1.43
May	484	59	183	1.71	1.97
June	298	24	64.7	.605	.68
July	88	14	31.8	.297	.34
August	131	8.9	27.3	.255	.29
September	37	4.2	12.3	.115	.13
The Year	2,420	4.2	183	1.71	23.18

#### OHIO BASIN—STATION NO. 32

#### PYMATUNING CREEK NEAR ORANGEVILLE

*Location.*—At single-span steel highway bridge, about two miles southeast of Orangeville, Mercer County.

*Drainage Area.*—170 square miles.

*Records Available.*—January 1, 1914, to August 31, 1923, and November 19, 1925, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by D. S. Stecher and A. E. Bernard.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank is high and not subject to overflow; left becomes inundated at a stage of about 5.4 feet. Bed is composed of gravel and boulders. Low-water control is at a riffle about 30 feet downstream from gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year 8.60 feet observed at 7 a. m. January 23 (discharge, about 3,800 second-feet); minimum, 0.60 foot at 7 a. m. September 20 (discharge, 3.3 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.



**Regulation.**—During low stages slight variations in gage heights are caused by operation of mills.

**Accuracy.**—Stage-discharge relation permanent except when affected by ice. Rating curve well defined below 1,500 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for low stages which are fair, owing to probable effect of mill operation upstream from the station.

*Discharge measurements of Pymatuning Creek near Orangeville during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
42	July 19a	S. A. Kowalchik	Feet	Sec.-ft.
43	Sept. 8b	do	0.74	10.7
			.61	3.48

a Measurement made by wading 200 feet downstream from gage.  
b Measurement made by wading 500 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Pymatuning Creek near Orangeville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.46	4.95	2.81	2.01	3.66	3.88	2.28	1.10	1.82	0.92	1.12	0.72
2	3.33	4.76	2.38	1.82	3.40	3.48	2.55	1.18	1.68	.86	1.00	.70
3	4.21	4.14	1.96	1.75	3.65	2.92	2.32	1.23	1.59	.82	.98	.72
4	3.89	3.58	1.70	1.72	3.85	2.41	2.23	1.30	1.66	.80	.96	.70
5	4.20	3.41	1.43	1.79	3.16	2.06	3.04	1.27	1.72	.82	.86	.70
6	4.43	3.16	1.38	1.54	2.93	2.12	2.95	1.22	1.68	.79	.83	.71
7	4.00	2.72	1.28	1.38	2.74	2.78	2.70	1.20	1.43	.80	.78	.69
8	3.72	2.48	1.30	1.33	2.62	3.00	2.56	1.23	1.32	.77	.86	.70
9	3.56	2.78	1.34	1.32	2.54	2.92	2.44	1.20	1.33	.77	.98	.68
10	3.56	2.96	1.40	1.30	2.29	2.88	2.30	1.20	1.19	.74	.92	.70
11	3.64	2.57	1.36	1.27	2.13	2.99	2.12	1.22	1.17	.80	.87	.70
12	3.34	2.42	1.42	1.24	1.99	2.81	1.94	1.23	1.12	.79	.79	.69
13	3.06	2.34	3.20	1.20	1.98	2.86	1.78	1.22	1.14	.77	.76	.73
14	2.65	2.30	4.39	1.18	3.05	2.88	1.54	1.24	1.08	.80	.77	.67
15	2.16	3.20	3.68	1.15	4.61	2.92	1.32	1.27	1.02	.86	.82	.69
16	1.85	5.32	3.50	1.16	4.18	2.88	1.31	1.50	1.08	.80	.80	.89
17	1.74	4.60	3.60	1.18	3.62	2.73	1.22	2.02	1.02	.82	.81	.67
18	2.20	3.96	3.68	1.60	3.36	2.76	1.20	2.68	1.00	.79	.82	.66
19	2.98	3.76	3.65	2.15	2.92	3.48	1.16	3.12	1.02	.76	.81	.64
20	2.84	3.42	4.20	5.21	2.42	5.44	1.15	2.99	1.06	.76	.78	.61
21	2.56	3.05	3.82	6.93	2.34	6.68	1.23	2.66	1.00	.75	.78	.64
22	2.38	2.88	2.96	7.80	2.00	7.05	1.17	2.39	1.02	1.00	.76	.66
23	2.22	2.82	2.16	8.26	1.98	5.60	1.17	2.55	1.18	1.99	.76	.64
24	3.90	2.70	2.05	7.36	2.16	4.34	1.13	2.42	1.02	1.92	.75	.70
25	5.85	2.58	2.34	6.25	3.12	3.58	1.10	3.02	1.04	1.82	.72	.66
26	6.58	2.50	1.98	5.72	4.20	3.72	1.11	3.17	1.14	1.65	.72	.63
27	7.31	2.54	1.90	4.86	4.64	3.02	1.19	3.00	1.10	1.55	.72	.64
28	6.30	2.42	1.91	4.56	4.45	2.92	1.18	2.84	1.06	1.42	.73	.63
29	5.34	2.61	2.04	5.16		2.50	1.18	2.78	.98	1.56	.73	.64
30	4.92	2.84	2.00	4.94		2.38	1.13	2.42	.97	1.36	.74	.67
31	4.95		1.94	4.13		2.38		1.98		1.19	.71	

NOTE—Stage-discharge relation Dec. 16 to Jan. 22 and Jan. 26-31 affected by ice.

*Daily discharge, in second-feet, of Pymatuning Creek near Orangeville for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	655	1,180	453	60	717	781	320	54	194	27	57	8.3
2	595	1,100	346	60	625	655	399	68	171	20	52	7.3
3	880	846	230	70	686	481	320	76	149	15	35	8.3
4	781	686	171	80	749	346	320	89	160	13	32	7.3
5	880	625	120	90	566	253	509	84	171	15	20	7.3
6	950	566	104	85	481	268	509	75	171	12	16	7.8
7	813	426	85	70	426	453	426	71	114	13	12	6.9
8	717	372	89	60	399	509	399	76	93	11	20	7.3
9	686	453	97	55	372	481	359	71	95	11	35	6.4
10	686	509	108	55	320	481	320	71	69	9.4	27	7.3
11	686	399	100	46	281	509	268	75	66	13	21	7.3
12	595	346	112	34	243	453	230	76	57	12	12	6.9
13	537	333	566	32	243	481	194	75	61	11	10	8.8
14	399	320	950	32	509	481	138	78	51	13	11	6.0
15	281	566	717	28	1,020	481	93	84	41	20	15	6.9
16	206	1,320	220	24	880	481	91	128	51	13	13	23
17	182	1,020	70	28	686	426	75	243	41	15	14	6.0
18	294	813	80	38	625	453	71	426	38	12	15	5.6
19	509	749	100	110	481	655	64	537	41	10	14	4.7
20	453	625	130	240	346	1,370	64	509	48	10	12	3.6
21	399	509	120	600	333	2,200	76	426	38	10	12	4.7
22	346	481	110	2,600	243	2,420	66	346	41	38	10	5.6
23	294	453	95	3,510	243	1,480	66	399	68	243	10	4.7
24	781	426	90	2,740	281	914	59	346	41	218	10	7.3
25	1,590	399	130	1,840	537	686	54	509	44	194	8.3	5.6
26	2,120	372	130	1,200	880	717	56	566	61	160	8.3	4.3
27	2,660	372	120	700	1,020	509	69	509	54	138	8.3	4.7
28	1,910	346	110	500	950	481	68	453	48	112	8.8	4.3
29	1,320	399	130	500		372	68	453	35	138	8.8	4.7
30	1,140	453	110	700		346	59	346	34	100	9.4	6.0
31	1,180		70	750		346		243		69	7.8	

NOTE—Discharge Dec. 16 to Jan. 22 and Jan. 26-31 estimated, because of ice, from weather records, study of gage height graph and comparison with similar studies for Little Shenango River at Greenville and Shenango River near Jamestown and at Sharon.

*Monthly discharge of Pymatuning Creek near Orangeville for the year ending Sept. 30, 1927.*  
(Drainage area 170 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,660	182	823	4.84	5.58
November	1,320	320	582	3.42	3.82
December	950	70	196	1.15	1.33
January	3,510	24	546	3.21	3.70
February	1,020	243	541	3.18	3.31
March	2,420	256	677	3.98	4.59
April	509	54	194	1.14	1.27
May	566	54	244	1.44	1.66
June	104	34	78.2	.460	.51
July	243	9.4	54.7	.322	.37
August	57	7.8	17.6	.104	.12
September	23	3.6	6.83	.040	.04
The Year	3,510	3.6	329	1.94	26.30



## OHIO BASIN—STATION NO. 33

## SHENANGO RIVER AT SHARON

*Location.*—At single-span steel highway bridge, Chestnut Street, Sharon, Mercer County.

*Drainage Area.*—611 square miles.

*Records Available.*—August 1, 1909, to September 30, 1927.

*Gages.*—Standard chain attached to upstream side of bridge; read by H. H. Gerber. Automatic water stage recorder installed April 14, 1927, with stream side of well forming a retaining wall extension of the right side of the river about 90 feet upstream from the chain gage. Inspected by employees of the Department of Forests and Waters. Elevation of gage zeros 840.00 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from the Mill, Chestnut or State Street Bridges or by wading.

*Channel and Control.*—Banks become inundated at a stage of about 12 feet. Bed is composed of silt and gravel. Control is a water main, backed with gravel and boulders, about one-quarter of a mile downstream from the gage; probably permanent.

*Extremes of Discharge.*—Maximum stage during the year, 10.50 feet observed at 5 p. m. January 22 (discharge, 6,890 second-feet); minimum, 1.92 feet at 1 a. m. September 13 (discharge, 29 second-feet); a stage of 1.88 feet was reached at 9.30 p. m. September 21, but the water was being held back on account of dam construction.

*Ice.*—Water from this stream is used for industrial purposes and returned to the river at sufficiently high temperature to usually prevent the formation of ice for a considerable distance downstream from the station.

*Accuracy.*—Stage-discharge relation permanent. Rating curve well defined below 2,000 second-feet; fairly well defined between 2,000 and 5,000 second-feet and well defined between 5,000 and 9,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Cooperation.*—Station is maintained in cooperation with Carnegie Steel Company, Farrell, Pennsylvania.

*Discharge measurements of Shenango River at Sharon during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
119	Oct. 11	S. A. Kowalchik	Feet	Sec.-ft.
120	June 6	do	5.17	1,380
121	6	do	4.04	596
122	July 6a	do	3.98	600
123	Aug. 18a	do	2.19	54.2
			2.15	52.8

a Measurement made by wading 1,000 feet downstream from gage.

*Daily Mean Gage Height, in feet, of Shenango River at Sharon for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.93	6.80	5.44	2.92	5.62	5.18	4.07	3.48		2.38	2.78	2.22
2	4.70	6.05	5.18	2.96	5.40	4.67	4.35	3.40	3.25	2.32	2.76	2.15
3	4.64	5.60	4.61	3.04	5.47	4.25	4.44	3.42	3.12	2.24	2.56	2.09
4	4.58		4.25	3.18	5.48	3.98	4.44	3.44	3.70	2.22	2.38	2.07
5	4.90	4.60	3.82	3.23	5.22	3.88	4.72	3.50	4.85	2.21	2.28	2.11
6		7.00	4.50	3.65	3.15	5.82	4.08	5.24	3.48	4.15	2.20	2.03
7			3.59	3.08	5.72	5.20	4.88	3.36	3.62	2.44	2.38	2.05
8			4.16	3.74	5.42	6.21	4.56	3.14	3.54	2.47	2.52	2.00
9			5.43	4.22	2.90	5.04	6.38	4.32	3.01	3.42	2.46	1.99
10			6.15	4.37	2.90	4.84	6.10	3.95	3.00	3.47	2.38	1.99
11	5.18	5.21	4.22	2.86	4.54	5.78	3.68	3.03	3.97	2.28	2.28	1.99
12	4.98	4.50	4.30	2.81	4.26	5.62	3.49	2.96		2.22	2.18	1.95
13	4.63	4.17	4.65	2.90	4.11	5.41	3.38	2.93	2.96	2.20	2.14	2.07
14	4.38	4.10	6.70	2.95	4.84	5.44	3.28	2.98	2.86	2.25	2.18	2.23
15	4.21	4.36		2.88	5.86	5.58	3.19	3.25	2.80	2.18	2.26	2.20
16	4.11	8.12			5.31	5.09	3.11	3.98	2.73	2.14	2.22	2.20
17	3.92	8.19	3.85	2.75	5.60	4.80	3.16	4.85	2.72	2.24	2.20	2.25
18	3.90	7.04		3.05	5.56	4.78	3.22	4.65	2.72	2.18	2.18	2.19
19	4.55	6.92		5.11	5.19	5.58	3.20	5.49	2.76	2.14	2.17	2.18
20	4.38	6.34		7.94	4.88	7.89	3.12	5.88	2.78	2.14	2.18	2.13
21	4.25	5.76	3.75	8.92	4.38	9.78	3.12	5.08	2.78	2.12	2.33	2.13
22	4.19	5.20	3.60	10.01	4.37	10.05	3.26	4.68	2.69	2.84	2.38	2.12
23	4.50	4.78	3.58	9.50	5.40	8.65	3.20	4.53	2.70	4.76	2.44	2.10
24	6.19	4.65	3.50	8.22	6.80	6.70	3.14	5.20	3.09	4.28	2.50	2.11
25	9.42	4.68		6.80	6.73	5.66	3.09	5.90	2.88	3.41	2.19	2.10
26	9.21	5.00		6.00	6.98	5.10	3.21	6.62	2.72	3.16	2.17	2.07
27	8.30	5.64	3.35	5.08	6.20	4.94	3.70	6.20	2.65	2.97	2.16	2.07
28	7.24	5.39	3.40	4.65	5.56	4.81	3.97	5.50	2.58	2.80	2.15	2.07
29	6.52	5.18	3.20	4.62		4.52	3.80	4.90	2.48	2.70	2.11	2.10
30	6.32	5.65	3.11	5.25		4.28	3.65		2.44	2.56	2.25	2.09
31	6.91		2.95	6.32		4.12		3.95		2.82	2.28	

NOTE—Gage height Oct. 7-10, Nov. 4, 7, Dec. 15, 16, 18-20, 25, 26, Jan. 16, May 30, June 1 and 12 unsatisfactory.



Daily discharge, in second-feet, of Shenango River at Sharon for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,220	2,590	1,530	230	1,660	1,400	755	455	500	93	186	66
2	1,100	1,930	1,400	243	1,530	1,100	922	413	352	83	181	56
3	1,040	1,660	1,040	276	1,590	809	922	413	294	69	130	48
4	1,040	1,300	809	332	1,590	702	922	434	549	66	93	45
5	1,220	1,040	599	352	1,400	649	1,100	455	1,160	65	76	50
6	2,770	980	524	313	1,790	755	1,400	455	809	63	66	41
7	2,800	854	500	294	1,730	1,400	1,220	392	500	105	93	43
8	2,200	805	574	257	1,530	2,090	1,040	313	478	111	121	37
9	1,800	1,530	809	223	1,280	2,250	865	257	413	109	121	36
10	1,500	2,090	922	223	1,160	2,010	676	257	434	93	109	36
11	1,400	1,400	809	211	980	1,790	549	276	676	76	76	36
12	1,280	980	865	195	865	1,660	455	243	380	66	60	32
13	1,040	809	1,040	223	755	1,530	413	243	243	63	55	45
14	922	755	2,500	240	1,160	1,530	372	250	211	71	60	68
15	809	922	1,800	217	1,860	1,660	332	352	192	60	73	63
16	755	3,900	1,100	200	1,460	1,340	294	702	172	55	66	63
17	649	4,010	624	178	1,660	1,160	313	1,160	170	69	63	71
18	649	2,770	380	276	1,660	1,160	332	1,040	170	60	60	62
19	1,040	2,680	440	1,340	1,400	1,660	332	1,590	181	55	59	60
20	922	2,170	600	3,680	1,220	3,680	294	1,860	186	55	60	53
21	809	1,790	574	4,810	922	5,920	294	1,340	186	52	84	53
22	809	1,400	500	6,180	922	6,180	352	1,100	162	204	93	52
23	980	1,160	500	5,530	1,530	4,450	332	980	164	1,160	105	49
24	2,090	1,040	455	4,010	2,590	2,500	313	1,460	294	865	79	50
25	5,410	1,100	500	2,590	2,500	1,730	294	1,860	217	413	62	49
26	5,170	1,280	550	1,930	2,770	1,340	332	2,410	170	313	59	45
27	4,120	1,660	392	1,340	2,090	1,220	549	2,090	152	247	57	45
28	2,950	1,530	413	1,040	1,660	1,160	676	1,590	135	192	56	45
29	2,330	1,400	332	1,040	-----	980	599	1,220	113	164	50	49
30	2,170	1,660	294	1,400	-----	865	524	900	165	130	71	48
31	2,680	-----	240	2,170	-----	755	-----	676	-----	198	76	-----

NOTE—Discharge Oct. 7-10, Nov. 4, 7, Dec. 15, 16, 18-20, 25, 26, Jan. 16, May 30, June 1 and 12 estimated, because of unsatisfactory gage height record, from weather records, study of gage height graph and discharge of Shenango River near Jamestown and at New Castle.

Monthly discharge of Shenango River at Sharon for the year ending Sept. 30, 1927.  
(Drainage area 611 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	5,410	649	1,800	2.95	3.40
November	4,010	755	1,640	2.68	2.99
December	2,500	240	762	1.25	1.44
January	6,180	195	1,340	2.19	2.52
February	2,770	755	1,550	2.54	2.64
March	6,180	649	1,850	3.03	3.49
April	1,400	294	592	.969	1.08
May	2,410	233	875	1.43	1.65
June	1,160	105	326	.534	.60
July	1,160	52	175	.286	.33
August	186	50	83.9	.137	.16
September	71	32	49.9	.082	.09
The Year	6,180	32	917	1.50	20.39

OHIO BASIN—STATION NO. 34

## SHENANGO RIVER AT NEW CASTLE

*Location.*—At two-span steel highway bridge, West Washington Street, New Castle, Lawrence County.

*Drainage Area.*—797 square miles.

*Records Available.*—January 1, 1910, to September 30, 1927.

*Gage.*—Standard chain attached to upstream side of bridge; read by J. L. Moseley. Elevation of gage zero 787.00 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—Banks are high and not subject to overflow. Bed is composed of gravel and rock. Control is at a riffle, at the head of a low island, about 300 feet downstream from gage; practically permanent.

*Extremes of Discharge.*—Maximum stage during the year, estimated from hydrograph, 8.7 feet at 4 a. m. January 23 (discharge, 8,960 second-feet); minimum, 0.84 foot at 5 p. m. September 26 (discharge, 30 second-feet).

*Ice.*—Stage-discharge relation seldom affected by ice.

*Diversions.*—Water supply for the City of New Castle is taken from the river about one and one-half miles upstream from the gage.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for days when discharge was estimated, when they may be only fair.

Discharge measurements of Shenango River at New Castle during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
45	Nov. 4	S. A. Kowalchik	Feet	Sec.-ft.
46	4	R. J. Ferris and S. A. Kowalchik	3.83	1,850
47	July 18 <sup>a</sup>	S. A. Kowalchik	3.81	1,830
			1.05	62.6

<sup>a</sup> Measurement made by wading 3,600 feet upstream from gage.



Daily Mean Gage Height, in feet, of Shenango River at New Castle for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.57	5.50	4.05	2.10	4.35	3.82	2.83	2.34	2.45	1.35	1.61	1.12
2	3.43	4.95	3.61	2.05	3.82	3.40	3.40	2.23	2.20	1.29	1.71	1.11
3	3.51	4.38	3.21	2.04	3.86	3.05	3.55	2.02	2.02	1.28	1.62	1.13
4	3.29	-----	3.06	2.10	4.02	2.72	3.29	2.17	2.30	1.28	1.46	1.06
5	3.32	3.53	2.83	2.20	3.95	2.59	-----	2.31	3.22	1.20	1.33	.92
6	-----	3.45	2.33	2.16	4.75	-----	3.80	2.29	3.10	1.21	1.19	.92
7	5.47	3.13	2.28	2.06	4.68	-----	3.75	2.08	2.57	1.34	1.20	.87
8	4.87	2.91	2.59	2.02	4.10	4.30	3.37	1.98	2.31	1.24	1.23	1.66
9	4.22	3.51	2.86	1.98	3.82	4.70	3.27	1.89	2.24	1.15	1.52	.97
10	-----	5.38	3.04	1.98	3.62	4.40	2.84	1.89	2.17	1.26	1.49	.92
11	3.82	4.36	2.87	1.93	3.40	4.15	2.58	1.87	2.95	1.28	1.40	.94
12	3.49	-----	2.85	1.90	3.03	-----	2.39	1.91	2.50	1.35	1.28	.93
13	3.07	3.13	3.41	1.81	2.82	-----	2.21	1.84	2.12	1.24	1.21	.98
14	3.06	2.93	5.14	1.85	2.90	4.08	2.19	1.81	1.86	1.20	1.24	1.14
15	2.87	2.99	4.44	1.91	4.58	4.10	2.10	1.94	1.81	1.20	1.40	1.01
16	2.77	5.37	3.38	1.96	4.12	3.75	2.04	2.38	1.72	1.19	1.35	1.07
17	2.71	6.55	2.63	2.00	4.22	3.38	2.06	3.62	1.65	1.14	1.25	1.07
18	2.59	5.98	2.11	2.26	4.25	3.25	2.03	3.28	1.59	1.13	1.20	1.00
19	3.34	5.08	2.33	3.61	4.03	3.86	2.03	3.98	1.60	1.17	1.19	1.40
20	3.20	4.71	2.68	6.50	3.50	6.34	2.01	4.72	1.66	1.16	1.17	1.21
21	2.96	4.08	2.58	6.85	3.13	7.88	1.99	3.79	1.65	1.13	1.18	1.11
22	3.00	3.68	2.46	7.70	2.88	7.95	2.09	3.30	1.64	1.29	1.10	1.08
23	3.29	5.53	2.35	-----	3.25	7.40	2.07	3.03	1.64	-----	1.21	.97
24	4.42	5.23	2.28	7.10	5.42	5.82	2.64	3.42	1.89	-----	1.34	.91
25	6.63	3.13	2.41	5.60	5.15	4.55	1.94	4.15	1.90	2.40	1.25	.92
26	7.37	3.28	2.52	4.58	5.62	4.00	1.97	4.82	1.78	2.02	1.15	.86
27	6.72	3.73	2.37	3.95	5.50	3.90	2.20	4.52	1.65	1.86	1.14	.88
28	6.02	3.53	2.25	3.45	4.40	3.52	2.66	4.08	1.59	1.74	1.12	.96
29	5.26	3.65	2.26	3.85	-----	-----	3.27	2.66	3.55	1.41	1.66	.91
30	4.86	3.91	2.15	4.50	-----	3.18	2.59	3.15	1.39	1.53	1.13	.91
31	5.06	-----	2.16	5.30	-----	2.97	-----	2.75	-----	1.54	1.13	-----

NOTE—Gage height Oct. 6, 10, Nov. 4, 12, Jan. 23, Mar. 6, 7, 12, 13, Apr. 5, July 23 and 24 unsatisfactory. Stage-discharge relation Dec. 31 to Jan. 2 and Jan. 17 and 18 affected by ice.

Daily discharge, in second-feet, of Shenango River at New Castle for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,640	3,600	2,020	420	2,400	1,830	1,060	635	705	148	243	81
2	1,470	3,000	1,640	420	1,830	1,470	1,470	570	540	129	284	78
3	1,550	2,400	1,290	452	1,930	1,120	1,640	425	425	126	247	83
4	1,380	1,800	1,200	480	2,020	880	1,380	510	600	126	186	66
5	1,380	1,550	1,000	540	2,020	810	1,500	600	1,290	103	142	39
6	3,400	1,470	635	510	2,800	950	1,830	600	1,200	106	100	39
7	3,600	1,200	600	452	2,000	1,600	1,830	480	775	145	103	33
8	2,900	1,040	810	425	2,120	2,310	1,440	415	600	115	112	66
9	2,220	1,550	1,000	415	1,830	2,400	1,380	370	570	89	208	47
10	2,000	3,470	1,120	415	1,640	2,400	1,000	370	510	120	196	39
11	1,830	2,400	1,000	390	1,470	2,220	810	360	1,080	126	165	42
12	1,550	1,600	1,000	375	1,120	2,000	670	380	740	148	126	41
13	1,200	1,200	1,470	330	965	1,900	540	345	480	115	106	49
14	1,200	1,080	3,090	350	1,040	2,120	540	330	355	103	115	86
15	1,000	1,126	2,400	380	2,600	2,120	480	395	330	103	165	54
16	922	3,476	1,470	405	2,120	1,830	452	670	289	100	148	68
17	880	5,186	846	580	2,220	1,470	452	1,640	260	86	118	68
18	810	4,286	480	420	2,220	1,290	452	1,380	235	83	103	52
19	1,380	3,090	635	1,640	2,020	1,930	452	2,020	239	95	100	165
20	1,290	2,700	880	5,020	1,550	4,710	425	2,700	264	92	95	106
21	1,080	2,120	810	5,500	1,200	7,440	420	1,830	260	83	97	78
22	1,120	1,730	705	7,050	1,040	7,600	480	1,380	255	129	75	70
23	1,380	1,550	635	8,500	1,290	6,510	452	1,120	255	1,100	106	47
24	2,400	1,200	600	6,000	3,470	4,000	452	1,470	370	1,500	145	38
25	5,180	1,200	670	3,730	3,210	2,000	395	2,220	375	670	118	39
26	6,510	1,380	740	2,600	3,730	2,020	410	2,800	316	425	89	32
27	5,340	1,730	635	2,020	3,600	1,930	540	2,500	260	355	86	34
28	4,280	1,550	570	1,470	2,400	1,550	845	2,120	235	298	81	46
29	3,340	1,640	570	1,830	-----	1,380	845	1,640	168	264	50	38
30	2,900	1,930	510	2,500	-----	1,290	810	1,290	162	212	83	38
31	3,090	-----	460	3,340	-----	1,080	-----	922	-----	216	83	-----

NOTE—Discharge does not include the water diverted from the stream at the New Castle Water Works. Discharge estimated Oct. 6, 10, Nov. 4, 12, Jan. 23, Mar. 6, 7, 12, 13, Apr. 5, July 23 and 24, because of unsatisfactory gage height record, and Dec. 31 to Jan. 2 and Jan. 17 and 18, because of ice, from weather records, study of gage height graph and discharge of Shenango River near Jamestown and at Sharon.

Monthly discharge of Shenango River at New Castle for the year ending Sept. 30, 1927.

(Drainage area 797 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	6,510	810	2,270	2.86	3.30
November	5,180	1,040	2,110	2.66	2.97
December	3,090	460	1,020	1.29	1.49
January	8,500	330	1,900	2.40	2.77
February	3,730	965	2,090	2.63	2.74
March	7,600	810	2,420	3.05	3.52
April	1,830	395	847	1.07	1.19
May	2,800	330	1,110	1.41	1.63
June	1,290	162	471	.600	.67
July	1,500	83	242	.310	.36
August	284	50	131	.173	.20
September	165	32	58.7	.082	.09
The Year	8,500	32	1,220	1.54	20.93

NOTE—Discharge does not include the water diverted from the stream at the New Castle Water Works. Run-off includes the quantity of water diverted.

## OHIO BASIN—STATION NO. 35

## CONNOQUENESSING CREEK NEAR HAZEN

*Location.*—At single-span steel highway bridge, about one-half mile south of Baltimore & Ohio Railroad station at Hazen, Beaver County.

*Drainage Area.*—355 square miles.

*Records Available.*—June 3, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read by John D. Sockaci.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Right bank becomes inundated at a stage of about 10 feet; left is high and not subject to overflow. Bed is composed of gravel and boulders. Control is a deposit of gravel on ledge about 250 feet downstream from gage; permanent.

*Extremes of Discharge.*—Maximum open-water stage during the year, estimated from hydrograph, 10.6 feet at 2 p. m. November 16 (discharge, 7,730 second-feet); a stage of 10.6 feet, estimated from hydrograph, was reached at 10 p. m. January 19, but the water was



held back by an ice jam; minimum, 1.42 feet on September 7 (discharge, 25 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve well defined to 1,000 and fairly well defined to 5,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

*Discharge measurements of Connoquenessing Creek near Hazen during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
28	June 24	S. A. Kowalchik	1.93	91.6

*Daily Mean Gage Height, in feet, of Connoquenessing Creek near Hazen for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.75	4.23	3.87	2.39	3.22	3.41	2.75	2.54	2.47	1.67	6.55	1.69
2	2.90	3.81	3.44	2.31	3.01	3.20	4.22	2.48	2.38	1.62	4.30	1.62
3	2.87	3.37	3.25	2.41	3.02	3.03	4.15	2.39	2.28	1.57	3.18	1.58
4	2.69	3.12	2.99	2.65	3.03	2.87	3.72	2.47	4.73	1.49	2.82	1.55
5	2.94	2.90	2.78	2.55	3.30	2.84	3.69	2.60	6.15	1.47	2.62	1.49
6	4.39	2.72	2.68	2.48	4.56	3.30	3.58	2.38	4.30	1.60	2.33	1.44
7	3.79	2.62	2.39	2.59	4.40	4.26	3.23	2.34	3.26	3.45	2.36	1.42
8	3.37	2.58	2.73	3.87	3.91	5.14	3.00	2.25	2.85	2.63	1.52	
9	3.00	2.72	3.06	4.10	3.43	4.51	2.90	2.28	2.65	2.71	1.79	
10	2.89	3.20	2.89	3.92	3.18	3.82	2.76	2.27	2.53	2.34	2.30	1.72
11	2.72	2.86	2.84	3.60	3.02	3.65	2.61	2.35	2.76	2.72	2.13	1.98
12	2.59	2.60	2.84	2.87	2.92	3.39	2.51	2.24	2.55	2.13	2.08	1.83
13	2.44	2.53	3.67	2.52	3.07	3.01	2.45	2.16	2.42	1.88	1.92	1.91
14	2.30	2.63	5.15	3.22	3.77	3.08	2.38	2.15	2.43	1.74	2.03	2.03
15	2.27	2.74	4.24	3.44	4.00	3.09	2.33	2.42	2.47	1.70	2.86	1.87
16	2.25	8.99	3.68	3.29	4.06	2.88	2.31	2.68	2.16	1.88	2.24	1.77
17	2.43	7.60	3.23	3.10	4.10	2.74	2.33	3.04	2.08	1.83	2.08	1.66
18	2.67	5.27	2.64	2.92	3.88	3.85	2.29	3.39	2.14	1.71	2.06	1.73
19	2.97	4.34	2.45	6.88	3.66	3.47	2.23	8.18	2.24	1.65	2.14	2.91
20	2.66	3.61	2.65	9.90	3.46	5.92	2.26	5.97	2.20	1.57	2.18	2.42
21	2.53	3.27	2.67	8.37	3.39	8.74	2.22	4.25	2.12	1.62	2.28	2.08
22	2.38	3.11	2.67	9.20	3.36	6.97	2.38	3.52	2.07	4.15	2.18	1.99
23	2.43	2.86	2.53	7.66	4.08	5.24	2.36	3.20	1.94	4.66	2.02	1.86
24	2.94	2.78	2.53	5.08	5.14	3.84	2.21	3.76	1.89	3.37	1.94	1.79
25	5.43	2.76	2.78	3.90	5.33	3.42	2.17	4.20	1.95	2.51	1.82	1.75
26	4.61	2.69	3.08	3.30	5.49	3.21	2.23	3.69	2.19	2.23	1.77	1.69
27	3.81	2.83	2.94	2.82	4.58	3.11	3.06	3.33	2.09	2.11	1.73	1.65
28	3.45	2.64	2.75	3.18	3.84	2.90	3.41	3.06	1.88	2.31	1.68	1.65
29	3.07	2.84	2.66	5.43	2.78	2.95	2.90	1.80	2.42	1.67	1.67	1.83
30	3.10	4.34	2.52	4.09	2.70	2.73	2.74	1.72	2.95	1.68	2.09	
31	3.60	2.43	3.57	2.67	2.61	4.57	1.70					

NOTE—Stage-discharge relation Dec. 20-23 and Jan. 7-19 affected by ice. Gage height July 8 and 9 unsatisfactory.

*Daily discharge, in second-feet, of Connoquenessing Creek near Hazen for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	504	1,570	1,340	309	798	942	504	391	349	52	3,610	54
2	595	1,250	983	270	660	798	1,570	354	304	44	1,650	44
3	564	906	834	319	660	693	1,570	309	255	38	798	39
4	475	726	660	446	693	564	1,170	349	1,970	30	533	36
5	628	595	533	391	870	564	1,170	418	3,240	29	418	30
6	1,740	475	475	354	1,890	870	1,100	304	1,650	41	280	27
7	1,250	418	309	320	1,740	1,650	834	285	834	983	294	25
8	906	418	504	260	1,340	2,310	660	241	564	550	446	33
9	660	475	693	220	983	1,820	595	255	446	300	475	76
10	595	798	595	180	798	1,250	504	251	391	285	265	60
11	475	564	564	180	660	1,160	418	290	504	475	188	132
12	418	418	564	180	595	942	364	236	391	188	168	86
13	334	391	446	260	693	660	339	200	324	100	112	109
14	265	446	2,380	220	1,250	726	304	196	329	65	149	149
15	251	504	1,570	220	1,410	726	280	324	349	56	564	98
16	241	5,920	1,170	180	1,490	595	270	475	200	100	236	71
17	329	4,510	834	160	1,490	504	280	693	168	86	168	50
18	446	2,470	446	140	1,340	564	260	942	192	58	160	63
19	628	1,650	339	1,400	1,170	983	231	5,080	236	48	192	595
20	446	1,100	260	6,920	983	2,980	246	3,070	217	38	209	324
21	391	834	260	5,280	942	5,580	227	1,570	183	44	255	168
22	304	726	300	6,140	906	3,970	304	1,020	164	1,570	209	135
23	329	564	320	4,610	1,490	2,380	294	798	119	1,970	145	95
24	628	533	391	2,310	2,310	1,250	222	1,250	103	906	115	76
25	2,560	504	533	1,340	2,470	942	204	1,570	122	364	84	67
26	1,890	475	726	870	2,650	798	231	1,170	213	231	71	54
27	1,250	564	628	533	1,890	726	693	906	171	179	62	48
28	983	446	504	798	1,250	595	942	692	100	270	53	48
29	693	564	446	2,560	533	628	595	78	324	52	86	
30	726	1,650	364	1,490	475	504	504	60	628	53	171	
31	1,100		329	1,100		446		418		1,890	56	

NOTE—Discharge estimated Dec. 20-23 and Jan. 7-19, because of ice, from weather records, study of gage height graph and comparison with similar studies for Shenango River at Sharon and Chartiers Creek at Carnegie, and July 8 and 9, because of unsatisfactory gage height record, from weather records and study of gage height graph.

*Monthly discharge of Connoquenessing Creek near Hazen for the year ending Sept. 30, 1927.*  
(Drainage area 355 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	2,560	241	729	2.05	2.36
November	5,920	391	1,080	3.04	3.39
December	2,380	260	655	1.85	2.13
January	6,920	140	1,290	3.63	4.18
February	2,650	595	1,270	3.58	3.73
March	5,580	446	1,260	3.55	4.09
April	1,570	204	564	1.59	1.77
May	5,080	196	812	2.29	2.64
June	3,240	60	474	1.34	1.50
July	1,970	29	385	1.08	1.24
August	3,610	52	390	1.10	1.27
September	595	25	102	.287	.32
The Year	6,920	25	748	2.11	28.62



## OHIO BASIN—STATION NO. 36

## SLIPPERY ROCK CREEK AT WURTEMBERG

*Location.*—At three-span steel highway bridge, Wurtemberg, Lawrence County, about one-half mile downstream from the former gaging station, and about one mile upstream from the mouth of creek.

*Drainage Area.*—404 square miles.

*Records Available.*—January 1, 1912, to September 30, 1922, for station at former location, and October 1, 1922, to September 30, 1927, for station at present site.

*Gage.*—Standard chain attached to upstream side of bridge; read by Miss Grace Barton Wright. Elevation of gage zero 812.48 feet, United States Geological Survey datum.

*Discharge Measurements.*—Made from upstream side of bridge or by wading.

*Channel and Control.*—The right bank is high and not subject to overflow; the left becomes inundated at a stage of about 7.0 feet, and the stream overflows about 75 feet of the highway. Bed is composed of gravel and rocks; not subject to change. Low-water control is at a riffle, where the bed is composed of gravel and boulders, about 200 feet downstream from the gage; probably permanent. There is a decided change in the profile of the stream at a riffle, where the bed is composed of boulders and rock, about 1,000 feet downstream from the gage.

*Extremes of Discharge.*—Maximum stage during the year, 8.62 feet at 4.30 p. m. January 20 (discharge, 9,250 second-feet); minimum, 2.19 feet at 8.30 a. m. September 7 and 4.30 p. m. September 9 (discharge, 30 second-feet).

*Ice.*—Stage-discharge relation usually affected by ice.

*Accuracy.*—Stage-discharge relation permanent except when affected by ice. Rating curve fairly well defined below 1,000 second-feet. Gage read to hundredths twice daily. Daily discharge ascertained by applying daily mean gage height to rating table. Results good except for intermediate and high stages, when they are probably fair.

*Discharge measurements of Slippery Rock Creek at Wurtemberg during the year ending Sept. 30, 1927.*

No.	Date	Made by	Gage Height	Discharge
			Feet	Sec.-ft.
48	June 24	S. A. Kowalehik	2.68	132

*Daily Mean Gage Height, in feet, of Slippery Rock Creek at Wurtemberg for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.46	4.72	4.74	3.11	4.24	4.19	4.14	3.06	3.18	2.40	3.77	2.40
2	3.62	4.38	4.31	3.12	4.04	3.99	4.98	2.96	3.06	2.38	3.54	2.37
3	4.08	4.06	3.86	3.00	4.08	3.80	4.84	3.01	2.94	2.42	3.07	2.31
4	3.81	3.70	3.68	2.99	4.10	3.50	4.38	3.17	4.77	2.32	2.74	2.26
5	3.90	3.62	3.40	3.18	4.24	3.31	4.06	3.52	5.87	2.32	2.90	2.23
6	4.99	3.49	3.34	3.13	5.87	3.96	4.02	3.16	4.75	2.38	3.55	2.21
7	5.07	3.31	3.31	3.05	5.57	4.50	3.82	2.95	4.00	3.01	3.05	2.25
8	4.39	3.29	3.48	3.02	4.72	5.14	3.58	2.86	3.71	2.92	3.62	2.32
9	4.06	4.42	3.90	2.88	4.34	4.86	3.64	2.82	3.28	2.70	3.47	2.20
10	3.70	4.61	3.87	2.88	3.88	4.36	3.32	2.90	3.08	2.48	3.05	2.56
11	3.89	3.98	3.68	2.89	3.72	4.02	3.24	3.02	3.36	2.74	2.74	2.60
12	3.99	3.68	3.86	2.86	3.53	3.86	3.14	2.92	3.11	2.80	2.62	2.62
13	3.58	3.41	4.45	3.00	4.33	3.81	3.09	2.84	2.94	2.62	2.51	2.65
14	3.43	3.37	5.78	3.16	4.61	4.28	3.01	2.77	3.02	2.54	2.53	2.60
15	3.30	3.52	5.36	3.26	5.12	4.67	2.94	3.02	2.98	2.42	2.99	2.59
16	3.17	6.25	4.76	3.22	5.40	4.04	2.94	3.72	2.86	2.45	2.83	2.47
17	3.18	6.28	3.97	3.12	4.88	3.81	3.08	4.04	2.73	2.53	2.60	2.39
18	3.41	5.48	3.68	3.08	4.43	3.70	2.99	3.82	2.79	2.44	2.62	2.60
19	3.60	5.02	3.51	4.73	4.28	4.45	2.97	5.15	3.33	2.44	2.66	3.02
20	3.51	4.22	3.47	8.27	4.26	5.60	2.92	5.22	3.13	2.38	2.73	3.32
21	3.44	4.16	3.42	7.53	4.24	7.15	2.86	4.46	2.90	2.39	2.66	2.76
22	3.32	3.89	3.46	7.88	3.75	6.80	2.86	3.88	2.77	2.82	2.54	2.61
23	3.46	3.75	3.58	6.78	3.58	5.72	2.93	3.54	2.69	5.00	2.46	2.57
24	3.82	3.78	3.82	5.40	3.52	4.70	2.86	4.70	2.64	-----	2.52	2.43
25	6.10	3.69	3.98	4.84	5.23	4.22	2.84	5.42	2.57	4.60	2.44	2.37
26	5.89	3.72	3.88	4.23	5.49	4.04	3.38	5.35	2.70	3.70	2.38	2.35
27	5.08	4.16	3.53	3.34	4.82	4.22	4.30	4.55	2.80	2.74	2.36	2.38
28	4.30	4.02	3.42	3.10	4.41	3.98	3.95	4.05	2.64	2.79	2.33	2.40
29	4.20	3.85	3.18	3.34	-----	3.72	3.39	3.67	2.54	2.74	2.30	2.37
30	4.36	4.92	3.12	5.40	-----	3.68	3.32	3.48	2.46	2.97	2.44	2.60
31	4.84	-----	3.16	5.04	-----	3.70	-----	3.37	-----	3.99	2.37	-----

NOTE—Stage-discharge relation Dec. 20-22, Dec. 28 to Jan. 3 and Jan. 5-19 affected by ice. Gage height July 24 unsatisfactory.

*Daily discharge, in second-feet, of Slippery Rock Creek at Wurtemberg for the year ending Sept. 30, 1927.*

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	492	1,510	1,510	220	1,070	1,070	976	280	351	72	693	72
2	587	1,230	1,140	220	890	890	1,830	242	280	68	554	66
3	976	976	769	240	976	730	1,620	258	234	77	280	53
4	730	656	656	254	976	522	1,230	326	1,620	55	163	43
5	808	587	461	260	1,070	404	976	522	3,080	55	218	38
6	1,830	522	432	260	3,080	849	890	326	1,620	68	554	34
7	1,950	404	404	220	2,620	1,320	730	238	890	258	28	42
8	1,230	404	522	200	1,510	1,950	587	204	656	226	587	55
9	976	1,230	808	170	1,140	1,730	622	189	404	150	492	32
10	656	1,410	769	160	808	1,230	404	218	302	90	280	111
11	808	890	656	150	656	890	378	258	432	622	163	121
12	890	656	769	150	554	769	326	226	302	182	127	127
13	587	461	1,230	160	1,140	730	302	196	234	127	98	136
14	492	432	2,920	170	1,410	1,140	258	172	258	105	103	121
15	404	522	2,340	180	1,950	1,510	234	258	250	77	254	118
16	326	3,600	1,620	170	2,340	890	234	656	204	84	193	88
17	351	3,780	849	170	1,730	730	302	890	160	103	121	70
18	461	2,480	656	170	1,230	656	254	730	179	81	12	121
19	587	1,830	522	900	1,140	1,230	246	2,080	432	81	138	258
20	522	1,070	380	8,400	1,140	2,620	226	2,080	326	68	160	404
21	492	1,070	360	6,330	1,070	5,660	204	1,320	218	70	138	169
22	404	808	460	7,350	693	4,780	204	808	172	189	105	124
23	492	693	587	4,780	587	2,780	230	554	147	1,830	86	113
24	730	730	730	2,340	522	1,510	204	1,510	133	2,400	100	79
25	3,410	656	890	1,620	2,080	1,070	196	2,340	113	1,410	81	66
26	3,080	656	808	1,070	2,480	890	461	2,340	150	656	68	62
27	1,950	1,070	554	432	1,620	1,070	1,140	1,410	182	163	64	68
28	1,140	890	380	302	1,230	890	849	890	133	179	57	72
29	1,070	730	280	432	-----	656	461	622	105	163	51	66
30	1,230	1,730	240	2,340	-----	656	404	522	86	246	81	121
31	1,620	-----	220	1,830	-----	656	-----	432	-----	890	66	-----

NOTE—Discharge estimated Dec. 20-22, Dec. 28 to Jan. 3 and Jan. 5-19, because of ice, from weather records, study of gage height graph and comparison with similar studies for Connoquenessing Creek near Hazen, Shenango River at Sharon and Chartiers Creek at Carnegie, and July 24, because of unsatisfactory gage height record, from weather records and study of gage height graph.



Monthly discharge of Slippery Rock Creek at Wurtzburg for the year ending Sept. 30, 1927.

(Drainage area 404 square miles)

Month	Discharge in Second-feet			Run-off	
	Maximum	Minimum	Mean	Second-feet per square mile	Depth in inches
October	3,410	326	1,010	2.50	2.88
November	3,780	404	1,120	2.77	3.09
December	2,920	220	802	1.99	2.29
January	8,400	150	1,340	3.32	3.83
February	3,080	522	1,350	3.34	3.48
March	5,660	404	1,370	3.39	3.91
April	1,830	196	566	1.40	1.56
May	2,340	172	745	1.84	2.12
June	3,080	86	455	1.13	1.26
July	2,400	55	350	.866	1.00
August	693	51	209	.517	.60
September	404	32	102	.252	.28
The Year	8,400	32	783	1.94	26.30

#### OHIO BASIN—STATION NO. 37

#### RACCOON CREEK AT MOFFATT'S MILL

*Location.*—At single-span steel highway bridge, about four miles west of Woodlawn, at Moffatt's Mill, Beaver County.

*Drainage Area.*—178 square miles.

*Records Available.*—May 27, 1915, to September 30, 1927.

*Gage.*—Standard chain attached to downstream side of bridge; read to hundredths twice daily by Henry Schissler.

*Discharge Measurements.*—Made from downstream side of bridge or by wading.

*Channel and Control.*—Both banks are high and not subject to over-flow. Bed is composed of rocks and rock shingle; permanent. Control is at a riffle about 100 feet downstream from the gage. Stage-discharge relation may be affected by vegetable growth at control section during summer months.

*Extremes of Stage.*—Maximum gage height during the year, 6.60 feet at 7 a. m. November 17; minimum, 1.44 feet from 6 p. m. September 26 to 7 a. m. September 28.

*Ice.*—Stage-discharge relation usually affected by ice.

*Cooperation.*—Station is maintained in cooperation with United States Engineer Office, Pittsburgh, Pennsylvania.

Discharge measurements of Raccoon Creek at Moffatt's Mill during the year ending Sept. 30, 1927.

No.	Date	Made by	Gage Height	Discharge
18	June 24	S. A. Kowalehik	Feet 2.00	Sec.-ft. 31.0

Daily Mean Gage Height, in feet, of Raccoon Creek at Moffatt's Mill for the year ending Sept. 30, 1927.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.93	4.08	3.10	2.82	3.08	3.19	3.02	2.52	2.32	1.84	2.49	1.58
2	3.76	3.70	2.94	2.90	2.96	3.03	4.79	2.48	2.16	1.82	2.27	1.58
3	3.28	3.26	2.82	2.87	2.90	2.85	3.80	2.46	2.16	1.80	2.10	1.52
4	3.03	3.08	2.72	2.64	2.98	2.70	3.35	2.46	2.84	1.76	2.00	1.52
5	3.02	2.96	2.80	2.90	3.50	2.70	3.21	2.52	3.52	1.70	1.92	1.52
6	3.52	2.78	3.28	2.80	3.78	2.96	3.10	2.42	2.91	1.73	1.82	1.52
7	3.15	2.73	3.10	2.70	3.55	3.35	2.96	2.37	2.62	1.76	1.82	1.58
8	2.90	2.62	2.98	2.64	3.24	4.10	2.90	2.32	2.50	1.80	2.07	1.58
9	2.78	2.61	3.10	2.75	3.07	3.50	2.83	2.50	2.42	1.76	2.25	1.58
10	2.73	3.24	3.16	2.85	2.92	3.21	2.78	2.46	2.34	1.70	1.92	1.60
11	2.64	2.96	3.22	2.96	2.82	3.03	2.70	2.48	2.37	1.64	1.84	1.82
12	2.55	2.88	3.22	3.03	2.68	2.94	2.66	2.46	2.28	1.60	1.80	1.84
13	2.50	2.78	3.31	3.08	2.66	2.90	2.62	2.42	2.20	1.58	1.80	1.80
14	2.44	2.68	3.38	3.12	3.60	3.01	2.58	2.37	2.25	1.58	2.25	1.78
15	2.40	2.62	3.03	3.14	3.55	2.92	2.52	2.44	2.39	1.64	2.59	1.76
16	2.34	4.36	2.82	3.10	3.38	2.80	2.50	2.62	2.18	1.94	2.09	1.70
17	2.34	6.25	2.94	3.23	3.22	2.73	2.48	2.55	2.12	1.85	1.94	1.68
18	2.48	3.92	2.78	3.52	3.12	3.08	2.48	2.74	2.12	1.76	1.94	1.73
19	2.83	3.28	2.66	4.91	2.96	3.73	2.44	5.44	2.12	1.70	1.98	2.12
20	2.60	3.10	2.78	5.21	3.05	5.15	2.42	3.96	2.12	1.66	2.02	1.80
21	2.50	2.96	2.80	4.95	3.02	5.70	2.40	3.22	2.10	1.78	2.00	1.66
22	2.44	2.88	2.76	5.49	2.96	4.50	2.55	2.94	2.05	3.80	1.94	1.60
23	2.46	2.78	2.70	4.66	3.72	3.72	2.44	2.84	2.00	4.95	1.87	1.55
24	2.56	2.80	2.66	3.98	4.40	3.35	2.40	2.84	1.98	3.10	1.78	1.50
25	4.20	2.78	2.82	3.75	4.20	3.19	2.37	2.97	1.94	2.64	1.68	1.48
26	3.75	2.68	3.70	3.26	4.58	3.03	2.37	2.71	2.25	2.28	1.66	1.46
27	3.28	2.55	3.26	2.84	3.85	2.92	2.42	2.55	2.12	2.20	1.64	1.44
28	3.08	2.52	3.10	3.26	3.35	2.82	2.42	2.50	2.00	2.16	1.62	1.53
29	3.12	2.69	2.94	3.86	-----	2.73	2.48	2.46	1.92	2.10	1.62	1.64
30	3.24	3.35	2.80	3.50	-----	2.68	2.61	2.44	1.87	2.33	1.62	1.58
31	4.15	-----	2.84	3.26	-----	2.64	-----	2.42	-----	2.60	1.58	-----

NOTE—Stage-discharge relation Dec. 17-23, Dec. 31 to Jan. 3 and Jan. 9-19 affected by ice.



TABLE NO. XIII

Miscellaneous discharge measurements made during the year ending September 30, 1927.

Stream	Location	Date	Gage Height	Discharge	Drainage Area	Run-off in Second-foot	Remarks
			Feet	Sec.-ft.	Sq. Mi.	Sq. Mi.	
DELAWARE BASIN							
Lackawaxen River	Hawley, Wayne County	Oct. 9	* 1.73	472	290	1.63	Made at former gaging station.
Lackawaxen River	Hawley, Wayne County	Sept. 28	0.58	100	290	.34	Made at former gaging station.
Lackawaxen River	Hawley, Wayne County	Aug. 3	Referenced	1,720	1,210	1.42	Made from downstream side of highway bridge.
Schuylkill River	Royersford, Montgomery County	Sept. 13	Referenced	415	1,210	.34	Made from downstream side of highway bridge.
SUSQUEHANNA BASIN							
East Branch Swatara Creek	Pine Grove, Schuylkill County	May 16		29.6	18.1	1.64	Made by wading 15 feet upstream from bridge, on State Highway Pine Grove to Schuylkill Haven.
East Branch Swatara Creek	Pine Grove, Schuylkill County	27		67.8	21.0	3.23	Made by wading above Power Plant of East Penn Electric Company, about ½ mile downstream from bridge, on State Highway Pine Grove to Schuylkill Haven.
East Branch Swatara Creek	Pine Grove, Schuylkill County	27		82.5	21.0	3.93	Made by wading below Power Plant of East Penn Electric Company, about ½ mile downstream from bridge, on State Highway Pine Grove to Schuylkill Haven.
Frankstown Branch							Made at former gaging station.
Juniata River	Huntingdon, Huntingdon County	Sept. 8	1.26	346	845	.41	
Loyalsock Creek	Barbours, Lycoming County	July 20		76	376	.20	
Loyalsock Creek	Barbours, Lycoming County	22		66	376	.18	
Loyalsock Creek	Barbours, Lycoming County	26		101	376	.27	
Loyalsock Creek	Barbours, Lycoming County	28		68	376	.18	Record furnished by Pennsylvania State College. Measurements made by students at highway bridge.
Loyalsock Creek	Barbours, Lycoming County	Aug. 1		135	376	.36	
Loyalsock Creek	Barbours, Lycoming County	3		118	376	.31	
Loyalsock Creek	Barbours, Lycoming County	9		62	376	.16	
Muncy Creek	Muncy, Lycoming County	Dec. 1		304	216	1.41	Made at highway bridge ½ mile west of Muncy.

\* Gage height for discharge measurement made on July 15, 1926, was 0.37 foot instead of 0.98, as published in the 1926 Report.

TABLE NO. XIV.

Summary of Run-off in second-feet per square mile, Run-off depth in inches, Precipitation and Per cent Run-off to precipitation, for the year ending September 30, 1927.

Delaware Basin																	
Station	Drainage Area	Run-off in second-feet per square mile												Pre- cipita- tion	Per- cent		
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			Year	Depth in inches
Square Miles																	
Lackawaxen River near West Hawley	212	2.01	3.59	1.21	1.92	2.48	5.24	1.65	3.13	1.06	0.656	1.05	1.11	2.09	28.39	44.9	63.2
Wallenpaupack Creek at Wilsonville	297	1.19	5.07	1.26	1.63	2.52	4.19	1.63	2.40	1.05	.595	1.17	1.26	2.00	27.02	46.5	58.1
Shohola Creek near Shohola	82	1.82	4.99	1.79	1.62	2.56	4.74	1.94	3.44	1.44	1.02	2.01	2.90	2.52	34.21	44.4	77.0
Delaware River at Fort Jervis, N. Y.	3,070	1.66	3.91	1.22	1.35	2.11	5.67	1.74	3.01	1.13	.511	1.19	1.84	2.13	28.89	45.0	64.2
Rushkill Creek near Shoemakers	115	1.81	4.37	1.89	1.91	2.89	4.30	1.88	2.51	1.71	1.83	2.86	2.29	2.51	34.19	48.8	70.1
McMichael's Creek near Stroudsburg	62	1.43	3.74	1.21	1.06	2.23	2.77	1.18	1.71	1.76	1.27	1.21	.919	1.69	23.09	47.9	48.2
Delaware River at Belvidere, N. J.	4,540	1.57	3.81	1.36	1.56	2.25	4.89	1.83	2.71	1.27	.674	1.40	1.78	2.09	28.37	45.8	61.9
Lehigh River at Bethlehem a	1,240	1.85	4.56	1.38	1.38	2.01	3.00	1.56	1.92	1.84	1.12	1.17	.510	1.85	25.16	45.3	55.5
Delaware River at Riegelsville b	6,190	1.58	3.81	1.39	1.59	2.23	4.39	1.78	2.50	1.42	.827	1.35	1.57	2.04	27.59	45.0	60.9
Delaware River at Trenton, N. J. c	6,800	1.54	3.74	1.49	1.69	2.24	4.03	1.74	2.40	1.40	.816	1.33	1.53	1.99	27.05	45.0	60.1
Little Schuylkill River at Tamaqua d	44	2.41	7.00	1.72	2.59	2.86	3.66	1.99	2.39	1.49	1.73	1.38	.900	2.52	34.21	46.2	74.0
Schuylkill River at Reading e	900	1.87	3.62	1.59	1.90	2.13	2.31	1.49	1.56	1.39	1.01	1.73	.480	1.68	22.73	40.0	56.8
Schuylkill River at Pottstown f	1,170											1.03	.603				
Perkiomen Creek at Graters Ford	280	1.58	2.83	2.05	2.15	1.71	1.14	1.01	.946	.854	.507	1.65	.521	1.41	19.14	41.1	46.6
Schuylkill River at Norristown g	1,760											1.45	.773				
Brandywine Creek at Chadds Ford	285	1.01	1.97	1.84	1.82	1.96	1.36	1.29	1.26	.905	.902	1.29	1.30	1.41	19.07	41.4	46.1

a Run-off does not include the quantity of water diverted past the gage through the Lehigh Coal and Navigation Company Canal. Canal was closed Nov. 27 to Mar. 27.

b Run-off includes 230 second-feet, estimated quantity of water diverted past the gage through the Delaware Division of the Pennsylvania Canal, Oct. 1 to Nov. 27 and Mar. 28 to Sept. 30.

c Run-off includes the quantity of water diverted past the gage through Pennsylvania Canal, Trenton Power Canal and Delaware and Raritan Canal feeder.

d Run-off includes the quantity of water diverted from the stream by the Panther Valley Water Company.

e Run-off does not include the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal. Canal was closed Dec. 4 to May 31.

f Station established Aug. 2, 1927. Run-off includes the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal.

g Station established Aug. 5, 1927. Run-off includes the quantity of water diverted past the gage through the Schuylkill Navigation Company Canal.



TABLE NO. XV  
Summary of Run-off in second-feet per square mile, Run-off depth in inches, Precipitation and Per cent Run-off to precipitation, for the year ending September 30, 1927.  
Susquehanna Basin

Station	Drain- age Area	Run-off in second-feet per square mile												Run- off	Pre- cipita- tion	Per cent
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Year	Depth in inches	
Square Miles															Depth in inches	Run- off to pre- cipita- tion
North Branch Susquehanna River at Towanda	7,770	1.34	3.22	0.942	1.23	2.18	4.79	1.69	2.54	0.641	0.292	0.255	0.351	1.61	21.92	35.5
Towanda Creek near Monroeton	218	1.36	6.10	1.19	2.15	2.49	5.46	2.40	1.99	.711	.212	.281	.157	2.03	27.62	74.2
Tunkhannock Creek at Dixon	393	3.13	3.36	.840	1.58	2.60	4.02	1.39	3.23	.751	.372	.786	.934	1.91	25.59	42.1
Lackawanna River at Moosic	265	2.13	4.26	1.51	2.00	2.86	4.72	2.19	3.57	1.79	.977	1.23	1.47	2.39	32.43	61.7
North Branch Susquehanna River at Wilkes-Barre	9,960	1.46	3.11	.920	1.15	2.10	4.43	1.67	2.63	.787	.286	.322	.402	1.61	21.76	77.4
Wapwallopen Creek near Wapwallopen	46	1.22	4.41	1.18	1.73	2.10	2.65	1.48	2.35	1.28	.520	.380	.182	1.62	21.96	60.3
Nesquehock Creek near St. Johns a	49	.580													46.9	46.8
Fishing Creek at Bloomsburg	355	2.81	4.73	1.02	1.79	2.81	5.21	2.22	3.24	1.52	.716	.577	.358	2.24	30.51	71.4
North Branch Susquehanna River at Danville	11,200	1.48	3.44	.882	1.21	2.17	4.43	1.61	2.54	.813	.329	.333	.419	1.63	22.21	60.0
West Branch Susquehanna River at Bower	320	2.53	2.37	1.10	5.12	4.50	6.25	2.82	2.61	1.20	.491	.578	.253	2.48	33.70	78.0
Clearfield Creek at Dimeling	370	2.33	2.11	1.05	4.14	3.65	5.41	2.49	2.66	1.35	.465	.619	.276	2.21	29.98	43.2
Driftwood Branch Sinnemahoning Creek at Sterling Run	270	2.72	3.15	1.35	2.45	3.37	6.70	2.87	4.33	.937	.139	.131	.090	2.35	31.91	44.6
West Branch Susquehanna River at Renovo	2,990	1.91	2.66	1.16	2.82	3.44	5.79	2.88	3.38	1.35	.319	.332	.138	2.18	29.54	69.7
Bald Eagle Creek at Milesburg	140	1.89	3.31	.729	2.89	3.59	5.22	2.69	2.36	1.38	.552	.415	.194	2.08	28.18	65.4
Bald Eagle Creek at Beech Creek Station	565	1.41	2.83	1.02	1.84	2.87	4.39	2.71	2.74	1.35	.515	.444	.296	1.86	25.26	60.9
Pine Creek at Cedar Run	590	1.02	2.63	.868	1.62	2.19	5.19	1.88	2.61	.764	.176	.141	.052	1.59	21.62	68.2
Lycoming Creek near Trout Run	185	2.57	5.73	1.01	1.25	2.02	3.95	2.76	2.72	1.21	.284	.169	.103	2.15	29.11	73.4
West Branch Susquehanna River at Williamsport	5,670	1.80	3.33	1.13	2.28	3.17	5.52	2.79	3.19	1.35	.333	.326	.170	2.12	28.64	72.1
Loyalsock Creek at Loyalsock	433	2.61	5.45	1.07	1.79	2.06	5.68	2.31	2.77	1.26	.416	.312	.201	2.11	28.62	69.0
Frankstown Branch Juniata River at Williamsburg	295	.987	2.17	1.07	2.40	2.90	4.07	2.69	2.05	1.64	.580	.600	.424	1.79	24.29	52.8
Raystown Branch Juniata River at Saxton	790	.742	2.47	.796	1.96	3.04	3.35	2.43	1.92	2.00	.451	.430	.205	1.63	22.23	41.1
Tuscarora Creek near Port Royal	205	.800	3.41	.756	1.57	2.55	4.02	1.83	2.47	1.28	.142	.351	.362	1.78	24.16	51.4
Juniata River at Newport	3,380	.853	2.91	.725	1.57	2.64	3.70	2.14	2.30	1.68	.796	.850	.414	1.71	23.17	47.0
Susquehanna River at Harrisburg	24,100	1.38	3.47	.988	1.54	2.39	4.36	1.91	2.52	1.16	.527	.432	.335	1.75	23.70	52.7
Little Swatara Creek near Pine Grove	34	2.20	4.53	1.74	2.57	3.09	2.87	1.89	1.74	1.68	.679	.329	.264	1.95	26.53	59.5
Swatara Creek at Harpers	334	2.22	5.24	1.52	2.05	2.25	2.63	1.77	1.83	1.66	.877	.446	.338	1.90	25.73	62.6
															43.5	59.1

a Station discontinued Oct. 5, 1926.

TABLE NO. XVI  
Summary of Run-off in second-feet per square mile, Run-off depth in inches, Precipitation and Per cent Run-off to precipitation, for the year ending September 30, 1927.  
Ohio Basin

Station	Drain- age Area Square Miles	Run-off in second-feet per square mile												Pre- cipita- tion	Run- off to pre- cipita- tion		
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.			Year	Depth in inches
Allegheny River near Larabee	545	2.02	3.08	1.29	1.48	2.59	4.55	2.50	3.47	0.760	0.172	0.191	0.109	1.85	25.10	39.5	63.5
Brokenstraw Creek at Youngsville	290	4.76	5.07	1.81	2.54	3.20	4.66	2.48	3.26	.866	.545	.548	.199	2.49	33.85	49.0	69.1
Tionesta Creek at Nebraska	475	3.68	4.06	1.99	2.25	3.28	5.26	3.14	4.74	.975	.339	.145	.107	2.51	33.86	42.1	80.4
Oil Creek near Rouseville	330	3.88	4.67	1.59	2.78	2.60	4.15	2.80	3.64	.918	.358	.298	.217	2.30	31.20	46.0	65.0
French Creek at Kimmeytown	207	5.94	5.60	2.69	2.66	3.10	4.35	1.94	3.00	.531	.397	.211	.131	2.49	33.89	46.0	73.7
French Creek at Saegertown	586	5.72	5.34	2.17	3.19	3.24	3.96	1.86	2.80	.761	.510	.300	.159	2.51	33.95	45.2	75.1
Cussewago Creek near Meadville	88	5.34	4.56	1.93	2.58	2.97	3.18	1.25	2.20	.498	.331	.097	.114	2.09	28.92	42.4	66.8
Allegheny River at Franklin	6,010	3.30	4.13	1.83	2.20	3.08	4.41	2.50	3.29	.942	.344	.349	.160	2.20	29.85	42.6	70.1
East Branch Clarion River at In- stanter a	39	2.79															
Clarion River near Pacey	980	2.69	2.65	1.69	2.86	3.07	4.39	2.30	3.16	1.16	.210	.202	.094	2.04	27.64	39.4	70.2
Red Bank Creek at Saint Charles	540	2.56	2.37	1.39	3.72	3.07	5.35	2.31	2.43	1.39	.307	.183	.135	2.15	29.01	43.1	67.3
Mahoning Creek near Dayton	322	2.50	3.02	1.54	4.63	5.25	7.30	3.14	2.97	1.77	.326	.289	.165	2.73	37.05	43.9	84.4
Allegheny River at Kittanning	9,010	3.30	4.01	2.09	2.79	3.56	4.77	2.35	3.32	1.17	.344	.357	.178	2.34	31.87	42.9	74.1
Crooked Creek at Hileman's Farm	279	2.20	2.27	1.29	4.09	4.80	4.34	2.45	2.44	.437	.649	1.72	.129	2.22	30.18	48.5	62.2
Stony Creek at Johnstown b	468	1.38	2.29	1.66	4.19	4.38	4.76	3.06	2.41	2.75	1.15	1.62	.521	2.50	33.98	49.4	68.8
Blacklick Creek at Blacklick	386	2.26	1.86	1.27	4.35	3.55	4.61	2.42	2.33	1.19	.559	1.28	.443	2.17	29.53	47.8	61.8
Loyalhanna Creek at New Alexandria	264	1.83	1.70	1.36	4.17	4.28	4.02	2.36	2.69	1.74	.750	1.18	.300	2.14	29.03	52.8	55.0
Kiskiminitas River at Avonmore	1,720	1.65	2.08	1.44	4.11	4.06	4.38	2.63	2.29	1.88	.767	1.33	.491	2.25	30.53	50.4	60.6
Youghiogheny River at Friendsville, Md.	295	1.64	1.42	1.74	2.76	3.04	2.09	1.69	2.25	1.18	.269	.675	.213	1.57	21.37	52.9	40.4
Casselman River at Markleton	365	1.56	2.19	1.61	3.20	4.36	3.40	3.01	2.73	2.19	.411	.520	.197	2.10	28.49	49.2	57.9
Laurel Hill Creek at Ursina	122	3.00	2.11	1.95	6.43	5.40	4.43	3.39	4.10	2.70	.707	1.90	.298	3.02	40.98	51.0	80.4
Youghiogheny River at Connellsville	1,320	2.25	2.12	2.28	4.20	4.31	3.37	2.83	3.55	2.36	.573	.947	.282	2.42	32.73	51.8	63.2
Youghiogheny River at Sutersville	1,680	1.80	1.89	2.82	3.58	4.02	3.11	2.26	2.76	2.20	.511	.917	.266	2.18	29.56	50.4	58.6
Turtle Creek near Trafford	55	1.27	1.85	1.91	3.18	3.55	3.47	1.80	1.89	.536	.207	.181	.114	1.65	22.46	40.2	55.9
Chartiers Creek at Carnegie	260	3.33	2.90	2.31	3.02	3.43	3.32	1.67	1.89	.927	1.25	.519	.297	1.63	22.17	43.5	53.3
Shenango River near Jamestown	182	3.83	2.90	1.37	2.80	2.62	2.87	1.06	1.85	.542	.297	.255	.069	1.63	22.20	39.0	56.9
Little Shenango River at Greenville	107	3.21	3.21	1.36	2.58	2.63	3.28	1.28	1.71	.605	.292	.104	.115	1.71	23.18	39.3	39.0
Pymatuning Creek near Orangeville	170	4.84	3.42	1.15	3.21	3.18	3.08	1.14	1.44	.460	.266	.137	.082	1.50	20.39	36.3	72.5
Shenango River at Sharon	611	2.95	2.68	1.25	2.19	2.54	3.03	.969	1.43	.834	.286	.137	.082	1.50	20.39	38.3	53.2
Shenango River at New Castle c	797	2.86	2.66	1.29	2.40	2.63	3.05	1.07	1.41	.600	.310	.173	.087	1.54	20.93	39.1	53.5
Connoquenessing Creek near Hazen	355	2.05	3.04	1.85	3.63	2.65	3.55	1.59	2.29	1.34	1.08	1.10	.287	2.11	28.62	48.1	59.5
Slippery Rock Creek at Wurtsburg	404	2.50	2.77	1.99	3.32	3.34	3.39	1.40	1.84	1.13	.866	.517	.252	1.94	26.30	46.7	56.3

a Station discontinued Oct. 6, 1926.

b Run-off includes the quantity of water diverted from Quenahoning Reservoir.

c Run-off includes the quantity of water diverted from the stream at the New Castle Water Works.



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